2. To: (Receiving Organization) WMH Air & Water Services		3. From: (Originating Organization) WMH Air & Water Services		4. Related EDT No.: 621688	
5. Proj./Prog./Dept./Div.: EEM Program		6. Design Authority/ Design Agent/Cog. Engr.: B. P. Gleckler		7. Purchase Order No.: N/A	
8. Originator Remarks: Final document for approval.				9. Equip./Component No.: N/A	
				10. System/Bldg./Facility: N/A	
11. Receiver Remarks: 11A. Design Baseline Document? ☐ Yes ☒ No				12. Major Assm. Dwg. No.: N/A	
ENGINEERING DATA TRANSMITTAL				13. Permit/Permit Application No.: N/A	
				14. Required Response Date: 7/02/98	

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	HNF-2665		0	Environmental Release Summary (ERS) Database CY-1997 Releases and Supporting Data	EQ	1	1	

16. KEY											
Approval Designator (F)		Reason for Transmittal (G)				Disposition (H) & (I)					
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)		1. Approval 2. Release 3. Information		4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)		1. Approved 2. Approved w/comment 3. Disapproved w/comment		4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged			
17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)											
(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
		Design Authority									
		Design Agent									
1	1	Cog. Eng. B. P. Gleckler	<i>[Signature]</i>	6/30/98	H6-36						
1	1	Cog. Mgr. E. M. Greager	<i>[Signature]</i>	7/1/98	H6-36						
1	1	QA W. R. Thackaberry	<i>[Signature]</i>	6/30/98	H4-52						
		Safety									
1	1	Env. L. P. Diediker	<i>[Signature]</i>		H6-36						
18. Signature of EDT Originator		19. Authorized Representative Date for Receiving Organization		20. Design Authority/ Cognizant Manager		21. DOE APPROVAL (if required) Ctrl. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments					

RELEASE AUTHORIZATION

Document Number: HNF-2665, Rev. 0

Document Title: Environmental Release Summary (ERS) Database
CY 1997 Releases and Supporting Data

This document, reviewed in accordance with DOE Order 1430.1D, "Scientific and Technical Information Management," and DOE G 1430.1D-1, "Guide to the Management of Scientific and Technical Information," does not contain classified or sensitive unclassified information and is:

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7/1/98

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Environmental Release Summary (ERS) Database - CY 1997 Releases and Supporting Data

B. P. Gleckler

Waste Management Federal Services of Hanford, Inc.

Richland, WA 99352

U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: EDT-621689

UC: 630; 2000

Org Code: R1230

Charge Code: R4201

B&R Code: EW3120100

Total Pages: 357

Key Words: ERS; Effluent & Environmental Monitoring (EEM) Program

Abstract: The Environmental Release Summary (ERS) database is a "living" database. The database is continually modified to fulfill the current needs of the Effluent & Environmental Monitoring (EEM) Program (managed by Waste Management Federal Services of Hanford, Inc., Air & Water Services Organization.) Changes made, to accurately calculate current releases, affect how past releases are calculated. This document serves as a "snap-shot" of the database and software for the CY-1997 data and releases.

This document contains all of the relevant data for calculating radioactive airborne and liquid effluent releases from Fluor Daniel Hanford, Incorporated (FDH) and Bechtel Hanford Incorporated (BHI) facilities for CY-1997. The ERS database is the official repository for the CY-1997 ERS release reports and the settings used to generate those reports. As part of the Tri-Party Agreement, FDH is committed to provide a hard copy of the ERS database for Washington State Department of Ecology, upon request. This document also serves as that hard copy for the last complete calendar year.

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V.L. Dickland 7/1/98
Release Approval Date

Release Stamp

Approved for Public Release

**ENVIRONMENTAL RELEASE SUMMARY (ERS) DATABASE
CY 1997 RELEASES AND SUPPORTING DATA**

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1.0 PURPOSE AND SCOPE

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As part of the Tri-Party Agreement, FDH is committed to provide a hard copy of the ERS database for Washington State Department of Ecology, upon request. This document also serves as that hard copy, for the last complete calendar year.

2.0 AIR EFFLUENT RELEASES & DATA

This section contains all of the effluent air release reports and the sample collection and analysis supporting data. Sub-section 2.1 contains the air emission releases calculated for each major operating area. The remaining sub-sections include the sample collection and analysis supporting data (trend reports) and radionuclide airborne releases (release reports) for individual emission points or source terms. No release or trend reports were included for those emission points or source terms which did not operate in CY-1997.

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2.1 Dose Modeling Release Reports

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/27/98

Radionuclides Discharged to the Atmosphere from 100 Areas

01/01/97 through 12/31/97

Total System Flow: 2.6E+12 Liters = 9.2E+10 Cubic Ft

Radionuclide	Halflife	Release, Ci
Co-60	5.27 Years	ND
Sr-90 ^a	29.12 Years	2.1E-05
Ru-106	368 Days	ND
Sb-125	2.8 Years	3.7E-09
Cs-134	2.1 Years	ND
Cs-137	30 Years	5.5E-05
Eu-154	8.8 Years	ND
Eu-155	4.96 Years	ND
Pu-238	87.8 Years	5.8E-07
Pu-239/240 ^b	24,131 Years ^c	3.9E-06
Pu-241	14.4 Years	4.0E-05
Am-241	432 Years	2.5E-06

a ⁹⁰Sr values include Total β measurements from emission sources which are not analyzed for Sr.

b ^{239/240}Pu value includes Total α measurements from emission sources which are not analyzed for Pu.

c The half-life shown for Total Uranium is the half-life of ²³⁸U. The half-life shown for mixed ^{239/240}Pu is the half-life of ²³⁹Pu.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/27/98

Radionuclides Discharged to the Atmosphere from 200-East Area

01/01/97 through 12/31/97

Total System Flow: $3.3\text{E}+12$ Liters = $1.2\text{E}+11$ Cubic Ft

Radionuclide	Half-life	Release, Ci
Sr-90 ^a	29.12 Years	2.5E-04
Ru-106	368 Days	ND
Sn-113	115 Days	ND
Sb-125	2.8 Years	ND
I-129	$1.57\text{E}+7$ Years	$1.4\text{E}-03$
Cs-134	2.1 Years	ND
Cs-137	30 Years	$9.1\text{E}-04$
Pu-238	87.8 Years	$1.8\text{E}-07$
Pu-239/240 ^b	24,131 Years ^c	$6.3\text{E}-06$
Pu-241	14.4 Years	$6.4\text{E}-06$
Am-241	432 Years	$4.8\text{E}-06$

a ⁹⁰Sr values include Total β measurements from emission sources which are not analyzed for Sr.

b ^{239/240}Pu value includes Total α measurements from emission sources which are not analyzed for Pu.

c The half-life shown for Total Uranium is the half-life of ²³⁸U. The half-life shown for mixed ^{239/240}Pu is the half-life of ²³⁹Pu.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/27/98

Radionuclides Discharged to the Atmosphere from 200-West Area

01/01/97 through 12/31/97

Total System Flow: 8.2E+12 Liters = 2.9E+11 Cubic Ft

Radionuclide	Halflife	Release, Ci
-----	-----	-----
Sr-90 ^a	29.12 Years	3.0E-04
Cs-134	2.1 Years	ND
Cs-137	30 Years	7.7E-09
Pu-238	87.8 Years	2.2E-06
Pu-239/240 ^b	24,131 Years ^c	1.1E-04
Pu-241	14.4 Years	4.6E-05
Am-241	432 Years	2.0E-05

a ⁹⁰Sr values include Total β measurements from emission sources which are not analyzed for Sr.

b ^{239/240}Pu value includes Total α measurements from emission sources which are not analyzed for Pu.

c The half-life shown for Total Uranium is the half-life of ²³⁸U. The half-life shown for mixed ^{239/240}Pu is the half-life of ²³⁹Pu.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/27/98

Radionuclides Discharged to the Atmosphere from the 300 Area^a

01/01/97 through 12/31/97

Total System Flow: 2.6E+12 Liters = 9.3E+10 Cubic Ft

Radionuclide	Halflife	Release, Ci
H-3 (HTO)	12.3 Years	2.4E-01
H-3 (HT)	12.3 Years	5.5E-01
Co-60	5.27 Years	8.3E-10
Sr-90 ^b	29.12 Years	7.0E-07
I-131	8.04 Days	ND
Cs-137	30 Years	7.5E-07
Rn-220	55.6 Seconds	5.0E+01
Rn-222	1,600 Years	1.6E+00
Pu-238	87.8 Years	9.5E-10
Pu-239/240 ^c	24,131 Years ^d	6.7E-09
Am-241	432 Years	2.0E-09

a This report does not include releases from PNNL facilities.

b ⁹⁰Sr values include Total β measurements from emission sources which are not analyzed for Sr.

c ^{239/240}Pu value includes Total α measurements from emission sources which are not analyzed for Pu.

d The half-life shown for Total Uranium is the half-life of ²³⁸U. The half-life shown for mixed ^{239/240}Pu is the half-life of ²³⁹Pu.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/27/98

Radionuclides Discharged to the Atmosphere from the 400 Area

01/01/97 through 12/31/97

Total System Flow: $1.0\text{E}+12$ Liters = $3.6\text{E}+10$ Cubic Ft

Radionuclide	Half-life	Release, Ci
H-3 (HTO)	12.3 Years	7.9E+00
I-131	8.04 Days	ND
Cs-137 ^a	30 Years	4.6E-06
Pu-239/240 ^b	24,131 Years ^c	3.8E-07

a ¹³⁷Cs values include Total β measurements from emission sources which are not analyzed for Cs.

b ^{239/240}Pu value includes Total α measurements from emission sources which are not analyzed for Pu.

c The half-life shown for Total Uranium is the half-life of ²³⁸U. The half-life shown for mixed ^{239/240}Pu is the half-life of ²³⁹Pu.

2.2 100-K Area

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:54

100-K-5E: 105-KE BASIN ROOF VENTS (Y245, Y246, Y248, X245, X246, X248)

01/01/97 through 12/31/97

Total System Flow: 6.8E+11 Liters = 2.4E+10 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.91

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
K-40	1.9E-07	2.5E-16	7.9E-14
Co-60	ND	-1.6E-16	-2.1E-15
Sr-90	1.6E-05	2.1E-14	8.7E-14
Ru-106	ND	-1.5E-15	-1.8E-14
Sb-125	3.7E-09	5.0E-18	4.4E-15
Cs-134	ND	-2.5E-16	-2.0E-15
Cs-137	4.8E-05	6.3E-14	5.8E-13
Eu-154	ND	-3.7E-16	5.1E-15
Eu-155	ND	-7.3E-17	3.7E-15
Pu-238	5.7E-07	7.6E-16	3.3E-15
Pu239/40	3.6E-06	4.8E-15	1.9E-14
Pu-241	3.9E-05	5.2E-14	2.1E-13
Am-241	2.3E-06	3.0E-15	1.2E-14
Total α	9.9E-06	1.3E-14	1.2E-13
Total β	9.3E-05	1.2E-13	1.5E-12

04/21/98 12:45

100-K-5E: KE LOW BAY EAST (RV11) (Y245)

01/01/97 to 12/31/97

Page 1

Warning Levels:		2.0E-14	1.0E-10	Collect	Sample	Sample	Stack
		Total α	Total β	Time	FlowRate	Volume	FlowRate
On/Off Dates		μCi/ml	μCi/ml	Hours	CFM	ft3	CFM
12/26/96-01/02/97	* 2.1E-14 ± 144	2.0E-13 ± 9.64	166.2	2.0	19944	14000	
01/02/97-01/08/97	1.3E-14 ± 164	2.0E-13 ± 114	144.2	2.0	17300	14000	
01/08/97-01/15/97	1.8E-14 ± 147	1.8E-13 ± 104	169.3	2.0	20320	14000	
01/15/97-01/22/97	* 2.8E-14 ± 163	2.5E-13 ± 111	166.5	2.0	19978	14000	
01/22/97-01/29/97	1.7E-14 ± 174	1.9E-13 ± 114	144.6	2.0	17354	14000	
01/29/97-02/05/97	1.0E-14 ± 161	9.7E-14 ± 124	168.3	2.0	20195	14000	
02/05/97-02/12/97	* 3.0E-14 ± 133	2.6E-13 ± 9.94	168.2	2.0	20185	14000	
02/12/97-02/19/97	6.5E-15 ± 201	8.5E-14 ± 121	166.9	2.0	20023	14000	
02/19/97-02/26/97	6.7E-15 ± 211	7.9E-14 ± 111	169.5	2.0	20339	14000	
02/26/97-03/05/97	8.3E-15 ± 204	7.9E-14 ± 111	167.5	2.0	20101	14000	
03/05/97-03/12/97	* 2.4E-14 ± 154	1.9E-13 ± 9.74	168.6	2.0	20227	14000	
03/12/97-03/19/97	7.3E-15 ± 194	6.4E-14 ± 111	167.0	2.0	20039	14000	
03/19/97-03/26/97	6.7E-15 ± 204	1.2E-13 ± 111	169.3	2.0	20319	14000	
03/26/97-04/02/97	1.6E-14 ± 141	1.8E-13 ± 9.74	167.6	2.0	20109	14000	
04/02/97-04/09/97	1.1E-14 ± 321	1.2E-13 ± 144	168.4	2.0	20207	14000	
04/09/97-04/16/97	1.9E-14 ± 203	9.1E-14 ± 144	166.4	2.0	19971	14000	
04/16/97-04/23/97	* 2.6E-14 ± 202	1.4E-13 ± 144	167.8	2.0	20135	14000	
04/23/97-04/30/97	* 8.1E-14 ± 181	4.1E-13 ± 131	169.2	2.0	20305	14000	
04/30/97-05/07/97	* 1.2E-13 ± 224	8.3E-13 ± 131	165.3	2.0	19953	14000	
05/07/97-05/14/97	* 4.3E-14 ± 241	3.4E-13 ± 131	172.8	2.0	20739	14000	
05/14/97-05/21/97	* 2.2E-14 ± 271	1.9E-13 ± 131	152.4	2.0	18287	14000	
05/21/97-05/28/97	1.9E-14 ± 281	1.7E-13 ± 131	168.2	2.0	20185	14000	
05/28/97-06/04/97	1.0E-14 ± 271	1.1E-13 ± 131	167.6	2.0	20109	14000	
06/04/97-06/11/97	* 4.8E-14 ± 171	2.5E-13 ± 131	168.9	2.0	20273	14000	
06/11/97-06/18/97	1.2E-14 ± 271	1.1E-13 ± 131	166.7	2.0	20005	14000	
06/18/97-06/25/97	4.1E-15 ± 411	7.5E-14 ± 144	168.4	2.0	20213	14000	
06/25/97-07/02/97	8.3E-15 ± 401	1.5E-13 ± 131	168.1	2.0	20169	14000	
07/02/97-07/09/97	5.5E-15 ± 281	4.3E-14 ± 144	167.9	2.0	20149	14000	
07/09/97-07/16/97	2.4E-15 ± 241	5.8E-14 ± 144	169.7	2.0	20243	14000	
07/16/97-07/23/97	6.5E-15 ± 281	6.3E-14 ± 144	169.1	2.0	20169	14000	
07/23/97-07/30/97	3.2E-15 ± 391	3.9E-14 ± 144	167.1	2.0	20057	14000	
07/30/97-08/06/97	5.1E-15 ± 291	3.8E-14 ± 144	167.2	2.0	20063	14000	
08/06/97-08/13/97	6.8E-15 ± 261	5.8E-14 ± 144	168.3	2.0	20139	14000	
08/13/97-08/20/97	8.3E-15 ± 291	1.0E-13 ± 144	168.6	2.0	20231	14000	
08/20/97-08/27/97	5.2E-15 ± 331	5.7E-14 ± 144	168.5	2.0	20223	14000	
08/27/97-09/03/97	1.4E-14 ± 241	1.3E-13 ± 144	166.9	2.0	20267	14000	
09/03/97-09/10/97	1.7E-14 ± 201	9.3E-14 ± 144	166.5	2.0	19979	14000	
09/10/97-09/17/97	7.9E-15 ± 271	7.1E-14 ± 144	168.4	2.0	20209	14000	
09/17/97-09/24/97	6.2E-15 ± 361	1.0E-13 ± 144	168.4	2.0	20205	14000	
09/24/97-10/01/97	1.1E-14 ± 231	8.1E-14 ± 144	165.2	2.0	19941	14000	
10/01/97-10/08/97	1.1E-14 ± 221	6.9E-14 ± 144	168.8	2.0	20255	14000	
10/08/97-10/15/97	9.3E-15 ± 251	7.6E-14 ± 144	168.7	2.0	20247	14000	
10/15/97-10/22/97	7.8E-15 ± 331	9.9E-14 ± 144	166.9	2.0	20031	14000	
10/22/97-10/29/97	9.2E-15 ± 341	1.3E-13 ± 144	167.5	2.0	20097	14000	
10/29/97-11/05/97	8.2E-15 ± 291	9.8E-14 ± 144	169.0	2.0	20281	14000	
11/05/97-11/12/97	1.2E-14 ± 231	1.1E-13 ± 144	167.1	2.0	20055	14000	
11/12/97-11/19/97	2.0E-14 ± 251	1.9E-13 ± 144	165.4	2.0	20213	14000	
11/19/97-11/26/97	9.7E-15 ± 251	7.7E-14 ± 144	167.5	2.0	20099	14000	
11/26/97-12/03/97	7.3E-15 ± 251	4.3E-14 ± 151	167.9	2.0	20145	14000	
12/03/97-12/10/97	1.3E-14 ± 201	1.2E-13 ± 144	168.2	2.0	20185	14000	
12/10/97-12/17/97	1.8E-14 ± 241	1.5E-13 ± 144	89.4	2.0	10653	14000	
12/17/97-12/23/97	1.7E-14 ± 211	1.4E-13 ± 144	224.1	2.0	26929	14000	
12/23/97-12/31/97	* 3.5E-14 ± 181	1.9E-13 ± 144	191.9	2.0	23033	14000	
12/31/97-01/07/98	* 2.5E-14 ± 231	2.6E-13 ± 144	169.1	2.0	20165	14000	

SYMBOL KEY: * Concentration exceeds Warning Level (factored OCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

100-K-5E: 105-KE BASIN ROOF VENTS (X245)

01/01/97 to 12/31/97

Page 1

Warning Levels:	K-40	1.0E-08	3.0E-11	3.0E-09	Sb-125	1.0E-09	2.0E-09	Eu-154	Eu-155
On/Off Dates	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	Cs-134 $\mu\text{Ci}/\text{ml}$	Cs-137 $\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$
11/27/96-01/02/97	4.2E-14 ± 714	3.7E-16 ± 3654	3.4E-14 ± 194	9.6E-15 ± 1024	4.4E-15 ± 984	2.1E-15 ± 784	5.4E-14 ± 154	6.6E-16 ± 8264	3.7E-15 ± 704
01/02/97-01/29/97	6.5E-14 ± 584	2.9E-15 ± 1564	4.0E-14 ± 194	1.2E-14 ± 1284	4.3E-16 ± 9994	2.0E-15 ± 744	6.5E-14 ± 154	2.9E-15 ± 1164	2.2E-15 ± 1744
01/29/97-02/26/97	5.4E-14 ± 514	2.7E-15 ± 724	3.5E-14 ± 264	1.1E-14 ± 1504	4.6E-15 ± 1284	4.1E-16 ± 3544	5.7E-14 ± 164	3.4E-15 ± 1874	1.5E-15 ± 2574
02/26/97-04/02/97	5.0E-14 ± 654	8.1E-16 ± 1164	1.9E-14 ± 214	2.3E-15 ± 5844	1.9E-15 ± 2604	1.1E-16 ± 9994	6.5E-14 ± 144	3.0E-15 ± 1664	1.6E-15 ± 1704
04/02/97-04/30/97	5.2E-14 ± 604	6.4E-16 ± 3184	4.0E-14 ± 244	1.1E-14 ± 2004	1.2E-15 ± 3214	5.9E-16 ± 2124	4.7E-14 ± 164	2.6E-15 ± 2864	2.8E-15 ± 1134
04/30/97-05/28/97	5.0E-14 ± 674	1.6E-15 ± 1404	8.0E-14 ± 224	2.9E-14 ± 844	3.8E-15 ± 1964	2.0E-15 ± 864	2.1E-13 ± 124	6.7E-15 ± 774	2.5E-15 ± 1654
05/28/97-07/02/97	8.3E-14 ± 424	2.0E-15 ± 1124	1.9E-14 ± 264	9.0E-15 ± 2004		1.1E-15 ± 1554	9.6E-14 ± 134	3.5E-15 ± 1514	1.3E-15 ± 2334
07/02/97-07/30/97	8.9E-14 ± 374	1.6E-15 ± 1314	7.6E-15 ± 274	1.7E-14 ± 1254	4.9E-15 ± 1134	7.1E-17 ± 9994	1.8E-14 ± 284	1.7E-15 ± 3184	8.5E-16 ± 4304
07/30/97-08/27/97	7.8E-14 ± 404	4.8E-16 ± 5064	1.1E-14 ± 234		4.1E-16 ± 9994	2.1E-15 ± 974	3.1E-14 ± 204	3.9E-16 ± 9994	1.9E-15 ± 1834
08/27/97-10/01/97	6.2E-14 ± 404	2.7E-16 ± 5654	1.8E-14 ± 224	2.5E-15 ± 5104	1.3E-15 ± 3224	1.3E-15 ± 1224	4.4E-14 ± 154	3.2E-15 ± 1504	1.3E-15 ± 2074
10/01/97-10/29/97	7.5E-14 ± 564	5.3E-16 ± 3044	1.3E-14 ± 264	1.7E-14 ± 1084	3.8E-15 ± 1374	7.1E-17 ± 9994	4.1E-14 ± 204	3.7E-15 ± 1654	2.1E-15 ± 1584
10/29/97-11/26/97	5.9E-14 ± 504	1.3E-15 ± 1874	1.0E-14 ± 224	1.1E-14 ± 1754	3.5E-15 ± 1544	6.0E-16 ± 2714	4.5E-14 ± 174	1.6E-16 ± 9994	1.8E-16 ± 9994
11/26/97-12/31/97	5.9E-14 ± 514	1.4E-15 ± 904	3.0E-14 ± 244	6.9E-15 ± 2154	1.4E-15 ± 2834	8.0E-16 ± 1774	3.4E-14 ± 174	8.5E-16 ± 5084	2.3E-15 ± 1264
12/31/97-01/28/98	5.1E-14 ± 674	2.3E-16 ± 9994	5.7E-14 ± 234	2.1E-15 ± 8934	2.2E-15 ± 2674	1.7E-15 ± 1114	1.1E-13 ± 134	9.3E-15 ± 644	6.4E-15 ± 614

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

100-K-5E: 105-KE BASIN ROOF VENTS (X245)

01/01/97 to 12/31/97

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Warning Levels:	7.0E-14	6.0E-14	Pu-241	Am-241	Collect	Sample	Sample	Stack
On/Off Dates	Pu-238 $\mu\text{Ci}/\text{ml}$	Pu239/40 $\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	Time Hours	FlowRate CFH	Volume ft3	FlowRate CFH
11/27/96-01/02/97	1.2E-15 ± 9.94	7.9E-15 ± 9.14	9.2E-14 ± 124	4.2E-15 ± 104	791.4	2.0	94968	14000
01/02/97-01/29/97	1.3E-15 ± 10.9	8.6E-15 ± 9.64	1.1E-13 ± 124	4.9E-15 ± 104	624.6	2.0	74952	14000
01/29/97-02/26/97	8.1E-14 ± 124	5.5E-14 ± 124	5.5E-14 ± 124	3.4E-15 ± 114	672.9	2.0	80748	14000
02/26/97-04/02/97	8.7E-16 ± 114	5.6E-15 ± 9.64	6.1E-14 ± 124	4.5E-15 ± 114	840.0	2.0	100796	14000
04/02/97-04/30/97	2.4E-15 ± 9.84	1.4E-14 ± 9.34	1.6E-13 ± 124	7.5E-15 ± 9.54	671.8	2.0	80619	14000
04/30/97-05/28/97	3.3E-15 ± 9.94	1.9E-14 ± 9.54	2.0E-13 ± 114	1.1E-14 ± 9.54	659.7	2.0	79161	14000
05/28/97-07/02/97	1.0E-15 ± 104	8.2E-15 ± 9.14	7.0E-14 ± 124	3.3E-15 ± 114	839.8	2.0	100770	14000
07/02/97-07/30/97	2.4E-16 ± 154	1.6E-15 ± 104	1.7E-14 ± 164	1.2E-15 ± 114	671.8	2.0	80619	14000
07/30/97-08/27/97	2.6E-16 ± 164	1.9E-15 ± 114	2.1E-14 ± 144	1.6E-15 ± 114	672.7	2.0	80717	14000
08/27/97-10/01/97	6.7E-16 ± 124	4.3E-15 ± 104	3.8E-14 ± 134	3.1E-15 ± 114	838.4	2.0	100682	14000
10/01/97-10/29/97	6.1E-16 ± 124	3.3E-15 ± 9.84	4.0E-14 ± 134	2.5E-15 ± 9.94	672.0	2.0	80631	14000
10/29/97-11/26/97	5.1E-16 ± 124	3.2E-15 ± 104	3.7E-14 ± 134	2.5E-15 ± 104	672.0	2.0	80639	14000
11/26/97-12/31/97	1.4E-15 ± 9.44	8.5E-15 ± 9.44	9.3E-14 ± 124	4.6E-15 ± 124	840.6	2.0	100946	14000
12/31/97-01/28/98	2.2E-15 ± 114	1.3E-14 ± 104	1.6E-13 ± 124	6.4E-15 ± 104	673.0	2.0	80631	14000

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

HNF-2665 Rev. 0

04/21/98 12:45

100-K-5E: KE LOW BAY WEST (RV10) (X246)

01/01/97 to 12/31/97

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Warning Levels:	K-40 μCi/ml	1.0E-08 Co-60 μCi/ml	3.0E-11 Sr-90 μCi/ml	3.0E-09 Ru-106 μCi/ml	Sb-125 μCi/ml	1.0E-09 Cs-134 μCi/ml	2.0E-09 Cs-137 μCi/ml	Eu-154 μCi/ml	Eu-155 μCi/ml
On/Off Dates									
11/27/96-01/02/97	6.6E-14 ± 76%	-2.5E-15 ± 125%	2.7E-14 ± 20%	8.1E-15 ± 151%	2.5E-15 ± 232%	3.4E-16 ± 599%	5.1E-14 ± 18%	5.1E-15 ± 90%	-1.1E-15 ± 368%
01/02/97-01/29/97	6.2E-14 ± 46%	-1.7E-15 ± 169%	2.5E-14 ± 21%	-9.7E-15 ± 157%	-3.2E-15 ± 164%	6.1E-16 ± 282%	4.0E-14 ± 18%	4.2E-16 ± 999%	9.0E-16 ± 472%
01/29/97-02/26/97	5.6E-14 ± 65%	-8.7E-16 ± 258%	2.7E-14 ± 25%	-1.8E-14 ± 92%	1.7E-16 ± 999%	-4.3E-16 ± 416%	4.5E-14 ± 17%	1.2E-15 ± 435%	-1.6E-15 ± 207%
02/26/97-04/02/97	3.7E-14 ± 91%	1.7E-15 ± 82%	1.6E-14 ± 21%	5.0E-15 ± 258%	-8.3E-16 ± 557%	-1.2E-15 ± 112%	5.0E-14 ± 16%	2.2E-15 ± 116%	-1.6E-15 ± 189%
04/02/97-04/30/97	7.4E-14 ± 51%	2.1E-15 ± 82%	4.0E-14 ± 26%	7.6E-15 ± 281%	4.1E-16 ± 999%	-8.5E-16 ± 216%	4.9E-14 ± 18%	2.9E-15 ± 203%	-1.2E-15 ± 261%
04/30/97-05/28/97	6.8E-14 ± 43%	1.8E-15 ± 129%	8.7E-14 ± 24%	-8.6E-15 ± 290%	-8.2E-15 ± 135%	-1.1E-15 ± 263%	5.8E-13 ± 11%	-5.3E-16 ± 999%	5.1E-15 ± 101%
05/28/97-07/02/97	4.1E-14 ± 53%	4.7E-17 ± 999%	2.1E-14 ± 25%	-4.2E-15 ± 380%	2.1E-15 ± 228%	9.0E-16 ± 156%	6.2E-14 ± 15%	1.3E-16 ± 999%	3.3E-16 ± 708%
07/02/97-07/30/97	7.1E-14 ± 45%	2.0E-15 ± 129%	1.4E-14 ± 27%	-5.3E-15 ± 395%	-1.0E-15 ± 557%	-2.0E-15 ± 101%	3.6E-14 ± 20%	2.7E-15 ± 116%	-5.6E-15 ± 79%
07/30/97-08/27/97	5.7E-14 ± 60%	2.0E-15 ± 82%	1.0E-14 ± 23%	5.9E-16 ± 999%	-3.2E-15 ± 143%	8.5E-16 ± 128%	3.2E-14 ± 20%	6.4E-15 ± 76%	-8.1E-16 ± 427%
08/27/97-10/01/97	8.6E-14 ± 41%	-1.2E-15 ± 201%	1.3E-14 ± 22%	-7.1E-16 ± 999%	-4.0E-15 ± 117%	2.2E-17 ± 999%	4.9E-14 ± 15%	5.0E-15 ± 114%	1.8E-15 ± 188%
10/01/97-10/29/97	5.5E-14 ± 51%	-2.3E-16 ± 999%	8.2E-15 ± 26%	-4.0E-14 ± 60%	4.0E-15 ± 109%	-2.5E-15 ± 68%	3.2E-14 ± 21%	3.1E-16 ± 999%	-2.0E-15 ± 168%
10/29/97-11/26/97	4.2E-14 ± 74%	1.0E-15 ± 116%	8.2E-15 ± 23%	-1.3E-14 ± 149%	4.8E-15 ± 94%	1.3E-15 ± 132%	2.5E-14 ± 23%	4.7E-15 ± 90%	1.8E-16 ± 999%
11/26/97-12/31/97	1.1E-13 ± 34%	-2.9E-15 ± 78%	1.8E-14 ± 23%	6.5E-16 ± 999%	4.9E-16 ± 914%	7.9E-16 ± 149%	2.7E-14 ± 19%	1.4E-15 ± 401%	1.5E-15 ± 180%
12/31/97-01/28/98	7.0E-14 ± 46%	7.0E-16 ± 142%	4.3E-14 ± 22%	-3.1E-15 ± 689%	-6.0E-17 ± 999%	-3.6E-15 ± 70%	6.7E-14 ± 16%	-4.3E-15 ± 165%	5.0E-15 ± 69%

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

100-K-5E: KE LOW BAY WEST (RV10) (X246)

01/01/97 to 12/31/97

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Warning Levels:	7.0E-14 Pu-238 μCi/ml	6.0E-14 Pu239/40 μCi/ml	Pu-241 μCi/ml	Am-241 μCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
On/Off Dates								
11/27/96-01/02/97	9.3E-16 ± 11%	6.4E-15 ± 9.2%	7.3E-14 ± 12%	3.1E-15 ± 11%	601.3	2.0	72156	8200
01/02/97-01/29/97	7.5E-16 ± 11%	4.6E-15 ± 9.7%	6.5E-14 ± 12%	2.6E-15 ± 11%	624.3	2.0	74912	8200
01/29/97-02/26/97	3.3E-16 ± 12%	3.3E-15 ± 10%	2.9E-14 ± 13%	2.2E-15 ± 11%	672.9	2.0	80748	8200
02/26/97-04/02/97	7.3E-16 ± 11%	4.6E-15 ± 9.7%	6.5E-14 ± 12%	3.1E-15 ± 11%	640.0	2.0	100796	8200
04/02/97-04/30/97	2.3E-15 ± 9.9%	1.4E-14 ± 9.4%	1.8E-13 ± 12%	6.9E-15 ± 9.6%	671.9	2.0	80623	8200
04/30/97-05/28/97	3.1E-15 ± 10%	1.9E-14 ± 9.6%	2.1E-13 ± 12%	1.2E-14 ± 9.4%	659.7	2.0	79161	8200
05/28/97-07/02/97	5.8E-16 ± 11%	3.9E-15 ± 9.3%	3.9E-14 ± 12%	2.8E-15 ± 12%	639.8	2.0	100770	8200
07/02/97-07/30/97	4.7E-16 ± 12%	2.8E-15 ± 9.6%	2.7E-14 ± 14%	2.0E-15 ± 12%	671.8	2.0	80619	8200
07/30/97-08/27/97	2.6E-16 ± 15%	1.5E-15 ± 11%	1.7E-14 ± 15%	1.2E-15 ± 11%	672.7	2.0	80719	8200
08/27/97-10/01/97	5.1E-16 ± 12%	3.2E-15 ± 10%	5.3E-14 ± 13%	2.7E-15 ± 10%	838.4	2.0	106094	8200
10/01/97-10/29/97	2.7E-16 ± 16%	1.8E-15 ± 11%	1.9E-14 ± 16%	1.5E-15 ± 10%	671.9	2.0	80627	8200
10/29/97-11/26/97	1.5E-16 ± 18%	1.2E-15 ± 11%	1.2E-14 ± 16%	9.9E-16 ± 12%	672.0	2.0	80639	8200
11/26/97-12/31/97	7.2E-16 ± 11%	4.5E-15 ± 9.5%	5.4E-14 ± 12%	2.2E-15 ± 12%	840.6	2.0	100946	8200
12/31/97-01/28/98	2.0E-15 ± 11%	1.4E-14 ± 10%	1.6E-13 ± 12%	6.3E-15 ± 10%	672.6	2.0	80711	8200

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

100-K-5E: KE South Mezzanine (RV 6) (Y248)

01/01/97 to 12/31/97

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Warning Levels:	2.0E-14	1.0E-10	Collect	Sample	Sample	Stack
On/Off Dates	Total $\mu\text{Ci}/\text{m}^3$	Total $\mu\text{Ci}/\text{m}^3$	Time	FlowRate	Volume	FlowRate
			Hours	CFM	ft ³	CFM
12/26/96-01/02/97	3.9E-15 + 25X	5.0E-14 + 12X	165.9	2.0	19910	25000
01/02/97-01/08/97	1.7E-14 + 23X	7.7E-14 + 12X	144.2	2.0	17304	25000
01/08/97-01/15/97	1.7E-14 + 16X	1.5E-13 + 11X	169.4	2.0	20332	25000
01/15/97-01/22/97	1.2E-14 + 16X	1.4E-13 + 10X	166.4	2.0	19964	25000
01/22/97-01/29/97	1.5E-14 + 16X	1.6E-13 + 10X	144.6	2.0	17346	25000
01/29/97-02/05/97	1.4E-14 + 17X	1.2E-13 + 11X	168.8	2.0	20255	25000
02/05/97-02/12/97 *	2.3E-14 + 15X	2.2E-13 + 10X	167.8	2.0	20133	25000
02/12/97-02/19/97	5.4E-15 + 21X	6.7E-14 + 12X	167.0	2.0	20041	25000
02/19/97-02/26/97	6.3E-15 + 20X	9.3E-14 + 11X	169.5	2.0	20339	25000
02/26/97-03/05/97	5.6E-15 + 21X	4.4E-14 + 12X	167.3	2.0	20073	25000
03/05/97-03/12/97	1.3E-14 + 16X	1.6E-13 + 10X	168.6	2.0	20227	25000
03/12/97-03/19/97	4.0E-15 + 25X	5.2E-14 + 12X	167.1	2.0	20049	25000
03/19/97-03/26/97	5.6E-15 + 22X	8.1E-14 + 11X	169.3	2.0	20311	25000
03/26/97-04/02/97	7.3E-15 + 19X	9.4E-14 + 11X	167.6	2.0	20115	25000
04/02/97-04/09/97	8.0E-15 + 29X	6.1E-14 + 14X	167.5	2.0	20095	25000
04/09/97-04/16/97	2.0E-14 + 19X	8.7E-14 + 14X	167.3	2.0	20075	25000
04/16/97-04/23/97	1.8E-14 + 20X	8.5E-14 + 14X	168.1	2.0	20177	25000
04/23/97-04/30/97 *	3.6E-14 + 18X	1.7E-13 + 13X	169.0	2.0	20283	25000
04/30/97-05/07/97 *	3.0E-14 + 25X	5.1E-13 + 13X	166.2	2.0	19947	25000
05/07/97-05/14/97 *	2.1E-14 + 31X	2.2E-13 + 13X	172.7	2.0	20727	25000
05/14/97-05/21/97	1.5E-14 + 49X	2.7E-13 + 13X	152.2	2.0	18263	25000
05/21/97-05/28/97	1.0E-14 + 49X	1.8E-13 + 13X	166.6	2.0	20233	25000
05/28/97-06/04/97	1.2E-14 + 30X	1.4E-13 + 13X	167.3	2.0	20079	25000
06/04/97-06/11/97	1.1E-14 + 32X	1.4E-13 + 13X	169.2	2.0	20305	25000
06/11/97-06/18/97	5.8E-15 + 40X	1.1E-13 + 13X	166.5	2.0	19977	25000
06/18/97-06/25/97	4.8E-15 + 63X	1.1E-13 + 13X	168.6	2.0	20227	25000
06/25/97-07/02/97	7.6E-15 + 35X	1.1E-13 + 13X	167.9	2.0	20153	25000
07/02/97-07/09/97	6.6E-15 + 29X	6.2E-14 + 14X	166.8	2.0	20099	25000
07/09/97-07/16/97	5.6E-15 + 30X	6.0E-14 + 14X	169.3	2.0	20319	25000
07/16/97-07/23/97	5.4E-15 + 29X	5.1E-14 + 14X	167.4	2.0	20205	25000
07/23/97-07/30/97	5.2E-15 + 34X	6.0E-14 + 14X	166.8	2.0	20013	25000
07/30/97-08/06/97	4.6E-15 + 33X	4.8E-14 + 14X	168.0	2.0	20159	25000
08/06/97-08/13/97	4.5E-15 + 30X	4.2E-14 + 14X	167.5	2.0	20101	25000
08/13/97-08/20/97	8.2E-15 + 29X	9.9E-14 + 14X	168.4	2.0	20209	25000
08/20/97-08/27/97	4.7E-15 + 37X	6.3E-14 + 14X	169.5	2.0	20341	25000
08/27/97-09/03/97	7.9E-15 + 29X	7.7E-14 + 14X	168.1	2.0	20175	25000
09/03/97-09/10/97	7.6E-15 + 34X	1.2E-13 + 14X	166.1	2.0	19935	25000
09/10/97-09/17/97	7.6E-15 + 30X	9.5E-14 + 14X	168.8	2.0	20253	25000
09/17/97-09/24/97	8.8E-15 + 44X	1.8E-13 + 14X	168.4	2.0	20209	25000
09/24/97-10/01/97	5.5E-14 + 32X	5.6E-14 + 14X	166.0	2.0	19921	25000
10/01/97-10/08/97	1.0E-14 + 23X	7.8E-14 + 14X	168.0	2.0	20157	25000
10/08/97-10/15/97	5.0E-15 + 31X	4.7E-14 + 14X	169.6	2.0	20353	25000
10/15/97-10/22/97	6.6E-15 + 32X	8.7E-14 + 14X	166.2	2.0	19947	25000
10/22/97-10/29/97	4.7E-15 + 33X	5.9E-14 + 14X	168.9	2.0	20367	25000
10/29/97-11/05/97	4.2E-15 + 31X	4.0E-14 + 15X	168.3	2.0	20189	25000
11/05/97-11/12/97	5.1E-15 + 32X	5.9E-14 + 14X	168.0	2.0	20159	25000
11/12/97-11/19/97	1.2E-14 + 25X	1.2E-13 + 14X	167.5	2.0	20097	25000
11/19/97-11/26/97	2.6E-15 + 40X	3.0E-14 + 15X	167.5	2.0	20099	25000
11/26/97-12/03/97	4.3E-15 + 29X	3.0E-14 + 15X	167.9	2.0	20141	25000
12/03/97-12/10/97	1.1E-14 + 22X	6.7E-14 + 14X	168.4	2.0	20285	25000
12/10/97-12/14/97	8.2E-15 + 33X	8.1E-14 + 15X	87.9	2.0	10543	25000
12/14/97-12/31/97			0.0	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

HNF-2665 Rev. 0

04/21/98 12:45

100-K-5E: KE SOUTH MEZZANINE (RV6) (X248)

01/01/97 to 12/31/97

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Warning Levels:

On/Off Dates	K-40 μCi/m	1.0E-08 Co-60 μCi/m	3.0E-11 Sr-90 μCi/m	3.0E-09 Ru-106 μCi/m	Sb-125 μCi/m	1.0E-09 Cs-134 μCi/m	2.0E-09 Cs-137 μCi/m	Eu-154 μCi/m	Eu-155 μCi/m
11/27/96-01/02/97	7.9E-14 ± 40%	1.2E-15 ± 101%	1.9E-14 ± 21%	4.0E-15 ± 380%	-5.9E-16 ± 791%	-1.4E-16 ± 999%	2.6E-14 ± 21%	2.6E-16 ± 999%	-1.5E-15 ± 211%
01/02/97-01/29/97	7.2E-14 ± 52%	-3.0E-16 ± 62%	2.3E-14 ± 21%	-2.8E-15 ± 526%	4.3E-16 ± 917%	1.6E-15 ± 85%	4.3E-14 ± 18%	-9.2E-15 ± 100%	6.3E-16 ± 653%
01/29/97-02/26/97	1.2E-14 ± 259%	-6.3E-16 ± 263%	2.5E-14 ± 24%	6.6E-15 ± 221%	-2.7E-15 ± 206%	1.5E-15 ± 107%	4.8E-14 ± 19%	-1.7E-15 ± 264%	2.0E-15 ± 129%
02/26/97-04/02/97	8.8E-14 ± 39%	-2.1E-15 ± 90%	1.2E-14 ± 21%	5.8E-15 ± 215%	4.8E-15 ± 65%	5.0E-16 ± 287%	5.6E-14 ± 14%	9.1E-16 ± 610%	2.6E-15 ± 94%
04/02/97-04/30/97	2.9E-14 ± 117%	-6.4E-16 ± 263%	2.1E-14 ± 25%	5.1E-15 ± 295%	-4.3E-16 ± 999%	-3.5E-16 ± 600%	3.5E-14 ± 19%	4.7E-15 ± 90%	1.6E-15 ± 195%
04/30/97-05/28/97	8.6E-14 ± 47%	1.7E-15 ± 90%	4.8E-14 ± 24%	2.1E-15 ± 999%	2.7E-15 ± 270%	1.3E-15 ± 132%	1.9E-13 ± 12%	4.0E-15 ± 139%	2.9E-15 ± 125%
05/28/97-07/02/97	1.2E-13 ± 31%	-9.3E-16 ± 187%	1.6E-14 ± 23%	1.1E-15 ± 999%	5.5E-15 ± 94%	-3.5E-16 ± 429%	9.0E-14 ± 13%	2.2E-15 ± 208%	1.5E-15 ± 172%
07/02/97-07/30/97	5.9E-14 ± 59%	2.1E-15 ± 82%	8.4E-15 ± 31%	2.5E-14 ± 66%	-2.4E-15 ± 200%	6.0E-16 ± 272%	3.0E-14 ± 20%	1.1E-15 ± 512%	2.7E-15 ± 128%
07/30/97-08/27/97	1.5E-14 ± 233%	2.1E-15 ± 82%	1.0E-14 ± 23%	9.0E-16 ± 999%	-3.5E-15 ± 167%	-3.4E-16 ± 565%	4.0E-14 ± 17%	-2.6E-15 ± 156%	-1.2E-15 ± 281%
08/27/97-10/01/97	6.1E-14 ± 44%	1.4E-15 ± 90%	1.1E-14 ± 23%	-7.4E-16 ± 999%	3.9E-16 ± 999%	-2.0E-15 ± 96%	6.8E-14 ± 14%	1.5E-15 ± 142%	5.3E-16 ± 458%
10/01/97-10/29/97	9.8E-14 ± 41%	9.2E-16 ± 226%	7.0E-15 ± 23%	-1.7E-14 ± 121%	-4.5E-15 ± 118%	-1.7E-15 ± 110%	2.8E-14 ± 21%	4.7E-15 ± 82%	4.0E-15 ± 79%
10/29/97-11/26/97	5.8E-14 ± 60%	-2.9E-16 ± 627%	5.4E-15 ± 25%	1.2E-14 ± 107%	1.0E-15 ± 354%	8.0E-16 ± 179%	2.1E-14 ± 25%	1.6E-16 ± 999%	3.4E-15 ± 96%
11/26/97-12/14/97	1.0E-13 ± 55%	6.4E-16 ± 509%	7.9E-15 ± 27%	6.9E-15 ± 451%	-4.4E-15 ± 187%	-2.4E-15 ± 95%	1.0E-14 ± 48%	5.9E-15 ± 101%	4.8E-15 ± 79%
12/14/97-12/31/97									

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

100-K-5E: KE SOUTH MEZZANINE (RV6) (X248)

01/01/97 to 12/31/97

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Warning Levels:

On/Off Dates	7.0E-14 Pu-238 μCi/m	6.0E-14 Pu239/40 μCi/m	Pu-241 μCi/m	Am-241 μCi/m	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
11/27/96-01/02/97	4.9E-16 ± 12%	3.3E-15 ± 9.4%	3.6E-14 ± 13%	2.0E-15 ± 11%	792.2	2.0	95064	25000
01/02/97-01/29/97	6.6E-16 ± 13%	4.2E-15 ± 10%	4.9E-14 ± 13%	2.6E-15 ± 14%	624.5	2.0	74946	25000
01/29/97-02/26/97	6.4E-16 ± 12%	4.1E-15 ± 10%	4.1E-14 ± 13%	2.9E-15 ± 11%	673.1	2.0	80772	25000
02/26/97-04/02/97	4.1E-16 ± 12%	2.6E-15 ± 9.8%	2.9E-14 ± 13%	2.2E-15 ± 11%	659.8	2.0	100776	25000
04/02/97-04/30/97	1.3E-15 ± 10%	7.9E-15 ± 9.5%	9.8E-14 ± 12%	3.7E-15 ± 10%	672.0	2.0	80631	25000
04/30/97-05/28/97	1.6E-15 ± 11%	9.4E-15 ± 9.8%	9.1E-14 ± 12%	5.9E-15 ± 9.8%	659.8	2.0	79173	25000
05/28/97-07/02/97	3.7E-16 ± 13%	2.4E-15 ± 9.7%	2.2E-14 ± 14%	2.0E-15 ± 11%	839.5	2.0	100742	25000
07/02/97-07/30/97	2.6E-16 ± 14%	1.6E-15 ± 9.9%	1.6E-14 ± 16%	1.4E-15 ± 15%	672.0	2.0	80637	25000
07/30/97-08/27/97	2.2E-16 ± 16%	1.4E-15 ± 11%	1.4E-14 ± 15%	1.2E-15 ± 13%	673.5	2.0	80811	25000
08/27/97-10/01/97	4.3E-16 ± 13%	2.6E-15 ± 10%	3.0E-14 ± 13%	2.0E-15 ± 13%	837.5	2.0	100494	25000
10/01/97-10/29/97	2.0E-16 ± 17%	1.3E-15 ± 11%	1.4E-14 ± 17%	1.2E-15 ± 11%	672.7	2.0	80725	25000
10/29/97-11/26/97	1.4E-16 ± 16%	8.3E-16 ± 11%	1.0E-14 ± 17%	6.3E-16 ± 13%	671.2	2.0	80545	25000
11/26/97-12/14/97	2.0E-16 ± 17%	1.2E-15 ± 11%	1.3E-14 ± 19%	7.6E-16 ± 20%	424.4	2.0	50970	25000
12/14/97-12/31/97					0.0	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

HNF-2665 Rev. 0

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:54

100-K-5W: 105-KW BASIN ROOF VENTS (Y234, Y235, Y236, X234, X235, X236)

01/01/97 through 12/31/97

Total System Flow: 4.2E+11 Liters = 1.5E+10 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.91

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
K-40	1.2E-07	2.5E-16	7.8E-14
Co-60	2.3E-09	4.8E-18	1.4E-15
Sr-90	8.3E-07	1.8E-15	5.3E-15
Ru-106	ND	-1.6E-15	1.6E-14
Sb-125	ND	<0.0E+00	n/a
Cs-134	ND	-3.0E-17	1.7E-15
Cs-137	7.1E-06	1.5E-14	7.2E-14
Eu-154	ND	-5.1E-16	-7.9E-15
Eu-155	ND	-5.8E-16	-3.1E-15
Pu-238	6.8E-09	1.5E-17	1.0E-16
Pu239/40	3.8E-08	8.2E-17	7.0E-16
Pu-241	6.2E-07	1.3E-15	9.4E-15
Am-241	4.9E-08	1.1E-16	4.9E-16
Total α	1.4E-06	2.9E-15	1.5E-14
Total β	1.6E-05	3.5E-14	2.7E-13

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100-K-5H: KW LOW BAY EAST (RV 11) (Y234)

01/01/97 to 12/31/97

Page 1

Warning Levels:

On/Off Dates	Total α µCi/ml	Total β µCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
12/26/96-01/02/97	2.8E-15 ± 294	4.6E-14 ± 12%	168.2	2.0	20180	6800
01/02/97-01/08/97	2.0E-15 ± 364	2.0E-14 ± 16%	135.6	2.0	16752	6800
01/08/97-01/15/97	3.8E-15 ± 244	4.8E-14 ± 12%	167.8	2.0	20134	6800
01/15/97-01/22/97	8.6E-15 ± 204	8.7E-14 ± 12%	169.1	2.0	20296	6800
01/22/97-01/29/97	2.9E-15 ± 314	5.7E-14 ± 13%	143.2	2.0	17182	6800
01/29/97-02/05/97	5.4E-15 ± 234	3.9E-14 ± 14%	168.7	2.0	20247	6800
02/05/97-02/12/97	9.9E-15 ± 184	9.4E-14 ± 11%	167.6	2.0	20111	6800
02/12/97-02/19/97	1.4E-15 ± 384	4.5E-14 ± 13%	168.4	2.0	20205	6800
02/19/97-02/26/97	1.6E-15 ± 354	4.0E-14 ± 13%	167.9	2.0	20151	6800
02/26/97-03/05/97	1.3E-15 ± 414	1.9E-14 ± 16%	168.0	2.0	20155	6800
03/05/97-03/12/97	7.9E-16 ± 524	1.4E-14 ± 18%	168.4	2.0	20209	6800
03/12/97-03/19/97	1.6E-15 ± 364	2.0E-14 ± 16%	166.6	2.0	19937	6800
03/19/97-03/26/97	1.0E-15 ± 454	1.8E-14 ± 17%	169.5	2.0	20215	6800
03/26/97-04/02/97	8.2E-16 ± 504	1.5E-14 ± 17%	169.1	2.0	20293	6800
04/02/97-04/09/97	3.6E-15 ± 344	2.6E-14 ± 15%	167.1	2.0	20045	6800
04/09/97-04/16/97	5.2E-15 ± 304	3.3E-14 ± 15%	167.7	2.0	20127	6800
04/16/97-04/23/97	2.7E-15 ± 364	1.6E-14 ± 17%	168.5	2.0	20221	6800
04/23/97-04/30/97	2.4E-15 ± 404	1.7E-14 ± 16%	167.7	2.0	20125	6800
04/30/97-05/07/97	3.4E-15 ± 454	4.3E-14 ± 14%	168.7	2.0	20241	6800
05/07/97-05/14/97	4.4E-15 ± 374	4.2E-14 ± 14%	167.9	2.0	20141	6800
05/14/97-05/21/97	2.2E-15 ± 444	1.9E-14 ± 16%	168.5	2.0	20219	6800
05/21/97-05/28/97	2.0E-15 ± 504	2.3E-14 ± 15%	167.7	2.0	20127	6800
05/28/97-06/04/97	3.7E-15 ± 284	1.6E-14 ± 16%	167.9	2.0	20151	6800
06/04/97-06/11/97	3.5E-15 ± 334	2.8E-14 ± 15%	168.3	2.0	20191	6800
06/11/97-06/18/97	2.5E-15 ± 354	1.4E-14 ± 17%	167.0	2.0	20041	6800
06/18/97-06/25/97	2.2E-15 ± 354	8.9E-15 ± 19%	169.5	2.0	20341	6800
06/25/97-07/02/97	1.5E-15 ± 444	1.0E-14 ± 18%	165.0	2.0	19917	6800
07/02/97-07/09/97	1.9E-15 ± 424	1.6E-14 ± 16%	167.8	2.0	20129	6800
07/09/97-07/16/97	9.7E-16 ± 644	1.7E-14 ± 16%	168.4	2.0	20207	6800
07/16/97-07/23/97	2.1E-15 ± 444	2.8E-14 ± 15%	169.5	2.0	20415	6800
07/23/97-07/30/97	9.4E-16 ± 934	3.1E-14 ± 15%	166.9	2.0	20033	6800
07/30/97-08/06/97	4.4E-15 ± 324	4.6E-14 ± 14%	168.5	2.0	20217	6800
08/06/97-08/13/97	3.2E-15 ± 414	4.5E-14 ± 14%	166.9	2.0	20023	6800
08/13/97-08/20/97	1.3E-15 ± 674	3.4E-14 ± 15%	168.2	2.0	20183	6800
08/20/97-08/27/97	1.2E-15 ± 634	2.8E-14 ± 15%	169.3	2.0	20311	6800
08/27/97-09/03/97	4.7E-15 ± 314	4.1E-14 ± 15%	166.6	2.0	19993	6800
09/03/97-09/10/97	3.7E-15 ± 364	4.0E-14 ± 15%	169.8	2.0	20375	6800
09/10/97-09/17/97	1.2E-15 ± 604	2.2E-14 ± 16%	166.1	2.0	19933	6800
09/17/97-09/24/97	2.6E-15 ± 424	3.7E-14 ± 15%	168.6	2.0	20227	6800
09/24/97-10/01/97	3.8E-15 ± 654	3.3E-14 ± 15%	167.5	2.0	20099	6800
10/01/97-10/08/97	2.1E-15 ± 394	1.7E-14 ± 17%	167.1	2.0	20057	6800
10/08/97-10/15/97	1.8E-15 ± 464	2.1E-14 ± 16%	168.4	2.0	20209	6800
10/15/97-10/22/97	3.9E-15 ± 364	4.3E-14 ± 14%	168.9	2.0	20263	6800
10/22/97-10/29/97	2.5E-15 ± 444	3.5E-14 ± 15%	165.9	2.0	19907	6800
10/29/97-11/05/97	2.4E-15 ± 414	3.1E-14 ± 15%	167.1	2.0	20051	6800
11/05/97-11/12/97	4.6E-15 ± 294	3.7E-14 ± 15%	167.6	2.0	20109	6800
11/12/97-11/19/97	3.5E-15 ± 414	3.6E-14 ± 14%	165.4	2.0	20209	6800
11/19/97-11/26/97	1.1E-15 ± 624	1.7E-14 ± 16%	167.1	2.0	20053	6800
11/26/97-11/27/97	6.2E-15 ± 444	3.5E-14 ± 20%	37.1	2.0	4535	6800
11/27/97-12/29/97			0.0	0.0	0	0
12/29/97-12/30/97			24.3	2.0	2913	6800
12/30/97-01/26/98			0.0	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

IHF-2665 Rev. 0

04/21/98 12:45

100-K-5M: 105-KW BASIN ROOF VENTS (X234)

01/01/97 to 12/31/97

Page 1

Warning Levels:	K-40	1.0E-08	3.0E-11	3.0E-09	Sb-125	1.0E-09	2.0E-09	Eu-154	Eu-155
On/Off Dates	μCi/ml	Co-60 μCi/ml	Sr-90 μCi/ml	Ru-106 μCi/ml	μCi/ml	Cs-134 μCi/ml	Cs-137 μCi/ml	μCi/ml	μCi/ml
11/27/96-01/02/97	7.8E-14 ± 43%	5.9E-16 ± 208%		3.5E-15 ± 354%	-1.1E-15 ± 320%	2.0E-16 ± 573%	1.8E-14 ± 21%	1.2E-16 ± 999%	1.2E-15 ± 208%
01/02/97-01/29/97	8.7E-14 ± 55%	? 1.1E-15 ± 116%	4.2E-15 ± 29%	-1.4E-14 ± 129%	? 2.2E-15 ± 155%	? 1.3E-15 ± 100%	2.2E-14 ± 24%	? 1.2E-15 ± 510%	? 1.2E-15 ± 263%
01/29/97-02/26/97	3.5E-14 ± 64%	-5.8E-16 ± 443%	1.1E-15 ± 46%	? 2.4E-15 ± 775%	-5.2E-15 ± 100%	-6.3E-16 ± 253%	2.5E-14 ± 22%	? 1.1E-15 ± 512%	? -9.1E-16 ± 290%
02/26/97-04/02/97	9.1E-14 ± 40%	-5.9E-16 ± 229%	1.1E-15 ± 43%	-3.7E-15 ± 358%	? 1.1E-15 ± 246%	? 4.4E-16 ± 230%	6.5E-15 ± 44%	? 1.5E-15 ± 142%	? 4.3E-16 ± 678%
04/02/97-04/30/97	7.4E-14 ± 86%	? 4.0E-16 ± 509%	1.1E-15 ± 49%	-8.4E-15 ± 157%		? 2.4E-15 ± 64%	? 7.9E-15 ± 40%	? 1.5E-16 ± 999%	? 1.2E-15 ± 224%
04/30/97-05/28/97	2.4E-14 ± 201%	? 2.8E-15 ± 67%	1.5E-15 ± 42%	? 7.6E-15 ± 224%	? 2.9E-15 ± 163%	? 1.4E-15 ± 109%	8.8E-14 ± 24%	? 5.4E-15 ± 147%	? -6.3E-17 ± 999%
05/28/97-07/02/97	5.9E-14 ± 51%	? 1.4E-15 ± 90%	5.0E-16 ± 80%	-9.9E-15 ± 146%	-2.8E-15 ± 122%	? 4.7E-16 ± 272%	6.3E-15 ± 33%	? 3.5E-15 ± 151%	? 2.0E-15 ± 129%
07/02/97-07/30/97	8.8E-14 ± 40%	? 2.0E-15 ± 82%	7.7E-16 ± 56%	-1.0E-14 ± 174%	-4.7E-16 ± 890%	? 2.5E-16 ± 604%	9.3E-15 ± 35%	-3.0E-15 ± 219%	? 5.8E-16 ± 489%
07/30/97-08/27/97	7.8E-14 ± 43%	? 1.0E-15 ± 116%	2.3E-15 ± 35%	4.7E-15 ± 378%	? 8.0E-16 ± 645%	? 6.9E-16 ± 151%	2.5E-14 ± 22%	-4.3E-15 ± 141%	? -9.0E-17 ± 999%
08/27/97-10/01/97	7.4E-14 ± 58%	? 1.6E-15 ± 82%	1.1E-15 ± 43%	1.4E-14 ± 98%	? 2.4E-15 ± 153%	? 5.5E-16 ± 288%	1.9E-14 ± 22%	? 4.4E-15 ± 82%	? 3.6E-17 ± 999%
10/01/97-10/29/97	? 1.2E-13 ± 34%	? 5.3E-17 ± 999%	6.2E-16 ± 65%	-6.2E-15 ± 153%	? 3.7E-15 ± 153%	? 1.5E-15 ± 99%	9.6E-15 ± 33%	? 2.6E-15 ± 116%	-1.4E-15 ± 243%
10/29/97-11/26/97	? 1.4E-13 ± 36%	-1.2E-15 ± 187%	7.5E-16 ± 60%	? 1.8E-14 ± 74%	? 2.1E-15 ± 188%	-4.8E-16 ± 317%	1.1E-14 ± 28%	-7.1E-16 ± 624%	-8.2E-16 ± 419%
11/26/97-12/30/97	? 7.4E-13 ± 45%	? 1.7E-14 ± 151%	2.9E-16 ± 95%	-3.4E-14 ± 596%	-3.1E-14 ± 140%	? 9.2E-15 ± 153%	? 6.8E-15 ± 322%	? 1.1E-14 ± 508%	? 5.1E-15 ± 710%
12/30/97-01/26/98									

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

100-K-5M: 105-KW BASIN ROOF VENTS (X234)

01/01/97 to 12/31/97

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Warning Levels:	7.0E-14	6.0E-14			Collect	Sample	Sample	Stack
On/Off Dates	Pu-238 μCi/ml	Pu-239/40 μCi/ml	Pu-241 μCi/ml	Am-241 μCi/ml	Time Hours	FlowRate CFM	Volume ft3	FlowRate CFM
11/27/96-01/02/97	2.8E-17 ± 35%	1.7E-16 ± 16%	4.1E-15 ± 28%	2.4E-16 ± 14%	839.4	2.0	100728	6800
01/02/97-01/29/97	1.8E-17 ± 48%	1.5E-16 ± 19%	2.9E-15 ± 43%	1.6E-16 ± 18%	619.7	2.0	74364	6800
01/29/97-02/26/97	1.2E-17 ± 57%	8.4E-17 ± 23%	1.9E-15 ± 48%	7.9E-17 ± 20%	672.7	2.0	80718	6800
02/26/97-04/02/97	1.2E-17 ± 63%	4.5E-17 ± 34%	1.7E-15 ± 81%	2.2E-16 ± 15%	840.6	2.0	109870	6800
04/02/97-04/30/97	1.5E-17 ± 54%	6.4E-17 ± 27%	2.2E-15 ± 48%	9.4E-17 ± 24%	671.0	2.0	80519	6800
04/30/97-05/28/97	1.7E-17 ± 46%	1.2E-16 ± 19%	1.2E-15 ± 74%	1.4E-16 ± 19%	672.8	2.0	80729	6800
05/28/97-07/02/97	7.1E-18 ± 75%	2.4E-17 ± 41%	8.9E-16 ± 110%	1.7E-17 ± 49%	838.7	2.0	100542	6800
07/02/97-07/30/97	2.1E-18 ± 177%	1.2E-17 ± 56%	1.3E-17 ± 235%	1.3E-17 ± 49%	672.9	2.0	80785	6800
07/30/97-08/27/97	3.6E-18 ± 109%	2.4E-17 ± 36%	2.0E-15 ± 51%	3.3E-17 ± 37%	672.8	2.0	80735	6800
08/27/97-10/01/97	7.8E-18 ± 62%	5.7E-17 ± 24%	1.1E-15 ± 90%	6.0E-17 ± 22%	838.6	2.0	100628	6800
10/01/97-10/29/97	5.5E-18 ± 109%	1.9E-17 ± 58%	8.3E-17 ± 999%	2.7E-17 ± 38%	670.4	2.0	80445	6800
10/29/97-11/26/97	2.0E-18 ± 37%	2.0E-17 ± 37%	1.0E-15 ± 78%	1.7E-17 ± 55%	670.2	2.0	80423	6800
11/26/97-12/30/97	1.4E-17 ± 215%	3.0E-16 ± 31%	3.0E-15 ± 302%	9.1E-17 ± 137%	64.9	2.0	7787	537
12/30/97-01/26/98					0.0	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

100-K-5M: KN LOW BAY WEST (RV 10) (Y235)

01/01/97 to 12/31/97

Page 1

Warning Levels:

On/Off Dates	Total α pCi/ml	Total β pCi/ml	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft ³	Stack FlowRate CFM
12/26/96-01/02/97	1.8E-15 ± 354	4.4E-14 ± 133	168.1	2.0	20176	4300
01/02/97-01/08/97	1.1E-15 ± 442	2.3E-14 ± 168	139.5	2.0	16752	4300
01/08/97-01/15/97	3.0E-15 284	4.2E-14 ± 133	167.7	2.0	20124	4300
01/15/97-01/22/97	7.1E-15 ± 194	8.3E-14 ± 122	169.1	2.0	20296	4300
01/22/97-01/29/97	4.1E-15 ± 252	5.6E-14 ± 122	143.3	2.0	17192	4300
01/29/97-02/05/97	4.1E-15 ± 234	4.7E-14 ± 133	168.7	2.0	20243	4300
02/05/97-02/12/97	8.5E-15 ± 204	8.1E-14 ± 111	167.6	2.0	20115	4300
02/12/97-02/19/97	1.1E-15 ± 454	3.8E-14 ± 144	168.4	2.0	20201	4300
02/19/97-02/26/97	1.7E-15 ± 344	3.6E-14 ± 133	168.1	2.0	20169	4300
02/26/97-03/05/97	1.0E-15 ± 464	1.3E-14 ± 194	167.7	2.0	20119	4300
03/05/97-03/12/97	8.6E-16 ± 504	1.3E-14 ± 194	168.5	2.0	20217	4300
03/12/97-03/19/97	1.5E-15 ± 384	1.7E-14 ± 171	166.8	2.0	20009	4300
03/19/97-03/26/97	1.2E-15 ± 424	1.5E-14 ± 181	168.5	2.0	20223	4300
03/26/97-04/02/97	6.8E-16 ± 554	1.3E-14 ± 194	169.0	2.0	20277	4300
04/02/97-04/09/97	3.2E-15 ± 354	2.0E-14 ± 164	167.1	2.0	20053	4300
04/09/97-04/16/97	5.0E-15 ± 304	3.0E-14 ± 154	167.8	2.0	20131	4300
04/16/97-04/23/97	3.4E-15 ± 324	1.7E-14 ± 164	168.5	2.0	20223	4300
04/23/97-04/30/97	1.7E-15 ± 474	1.6E-14 ± 171	167.6	2.0	20117	4300
04/30/97-05/07/97	3.2E-15 ± 484	4.3E-14 ± 144	169.7	2.0	20243	4300
05/07/97-05/14/97	4.5E-15 ± 334	3.4E-14 ± 154	167.9	2.0	20143	4300
05/14/97-05/21/97	2.6E-15 ± 404	1.9E-14 ± 164	168.5	2.0	20223	4300
05/21/97-05/28/97	1.5E-14 ± 194	4.7E-14 ± 144	167.7	2.0	20121	4300
05/28/97-06/04/97	3.6E-15 ± 294	1.3E-14 ± 171	167.9	2.0	20151	4300
06/04/97-06/11/97	2.9E-15 ± 324	1.5E-14 ± 171	168.3	2.0	20189	4300
06/11/97-06/18/97	2.6E-15 ± 334	1.2E-14 ± 181	167.0	2.0	20041	4300
06/18/97-06/25/97	1.2E-15 ± 474	8.7E-15 ± 194	169.5	2.0	20343	4300
06/25/97-07/02/97	1.6E-15 ± 444	9.5E-15 ± 194	166.0	2.0	19915	4300
07/02/97-07/09/97	2.2E-15 ± 384	1.4E-14 ± 171	167.8	2.0	20131	4300
07/09/97-07/16/97	8.7E-16 ± 654	1.3E-14 ± 171	168.5	2.0	20215	4300
07/16/97-07/23/97	2.1E-15 ± 414	2.4E-14 ± 154	169.3	2.0	20399	4300
07/23/97-07/30/97	9.1E-16 ± 884	2.7E-14 ± 154	167.0	2.0	20041	4300
07/30/97-08/06/97	3.2E-15 ± 374	3.4E-14 ± 154	169.4	2.0	20331	4300
08/06/97-08/13/97	1.8E-15 ± 524	3.5E-14 ± 154	165.9	2.0	19909	4300
08/13/97-08/20/97	1.6E-15 ± 514	2.6E-14 ± 154	168.2	2.0	20151	4300
08/20/97-08/27/97	3.0E-15 ± 354	2.3E-14 ± 154	169.2	2.0	20305	4300
08/27/97-09/03/97	3.9E-15 ± 324	2.9E-14 ± 154	166.7	2.0	20001	4300
09/03/97-09/10/97	3.3E-15 ± 344	3.0E-14 ± 154	169.7	2.0	20361	4300
09/10/97-09/17/97	1.2E-15 ± 574	1.9E-14 ± 164	166.2	2.0	19947	4300
09/17/97-09/24/97	2.1E-15 ± 524	3.7E-14 ± 154	168.6	2.0	20227	4300
09/24/97-10/01/97	2.8E-15 ± 404	3.3E-14 ± 154	167.5	2.0	20103	4300
10/01/97-10/08/97	1.8E-15 ± 454	2.3E-14 ± 164	167.1	2.0	20049	4300
10/08/97-10/15/97	1.8E-15 ± 444	1.8E-14 ± 164	168.4	2.0	20213	4300
10/15/97-10/22/97	3.3E-15 ± 384	3.6E-14 ± 154	168.9	2.0	20267	4300
10/22/97-10/29/97	1.5E-15 ± 674	3.5E-14 ± 154	165.9	2.0	19907	4300
10/29/97-11/05/97	2.2E-15 ± 434	2.9E-14 ± 154	167.1	2.0	20049	4300
11/05/97-11/12/97	4.3E-15 ± 314	4.0E-14 ± 154	167.6	2.0	20109	4300
11/12/97-11/19/97	6.6E-15 ± 304	6.5E-14 ± 144	167.5	2.0	20097	4300
11/19/97-11/26/97	9.9E-16 ± 654	1.7E-14 ± 171	168.1	2.0	20167	4300
11/26/97-11/27/97	4.7E-15 ± 524	2.7E-14 ± 224	37.1	2.0	4531	4300
11/27/97-12/29/97			0.0	0.0	0	0
12/29/97-12/30/97			25.2	2.0	3023	4300
12/30/97-01/26/98	1.6E-15 ± 1274	2.1E-14 ± 304	-8103.3	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

100-K-5M: KW LOW BAY WEST (RV10) (X235)

01/01/97 to 12/31/97

Page 1

Warning Levels:

On/Off Dates	K-40 μCi/ml	1.0E-08 Co-60 μCi/ml	3.0E-11 Sr-90 μCi/ml	3.0E-09 Ru-106 μCi/ml	Sb-125 μCi/ml	1.0E-09 Cs-134 μCi/ml	2.0E-09 Cs-137 μCi/ml	Eu-154 μCi/ml	Eu-155 μCi/ml
11/27/96-01/02/97	8.5E-15 ± 430†	2.1E-16 ± 627†	1.7E-15 ± 37†	1.1E-15 ± 999†	2.8E-15 ± 124†	1.7E-15 ± 78†	1.2E-14 ± 28†	2.0E-15 ± 222†	5.0E-16 ± 548†
01/02/97-01/29/97	3.4E-14 ± 90†	6.3E-16 ± 443†	2.6E-15 ± 35†	5.2E-15 ± 357†	4.3E-15 ± 109†	3.1E-15 ± 91†	1.1E-14 ± 45†	1.7E-15 ± 442†	1.3E-15 ± 243†
01/29/97-02/26/97	9.2E-14 ± 37†	4.3E-16 ± 433†	2.3E-15 ± 33†	6.0E-15 ± 212†	1.1E-15 ± 405†	1.2E-15 ± 150†	2.0E-14 ± 26†	3.9E-15 ± 145†	1.4E-15 ± 238†
02/26/97-04/02/97	9.0E-14 ± 38†	2.1E-16 ± 627†	5.4E-16 ± 60†	1.4E-14 ± 77†	1.6E-15 ± 223†	1.1E-15 ± 109†	3.8E-15 ± 72†	6.1E-15 ± 67†	2.4E-15 ± 95†
04/02/97-04/30/97	1.4E-13 ± 37†	3.7E-16 ± 510†	8.0E-16 ± 59†	6.5E-15 ± 297†	1.4E-15 ± 312†	1.1E-15 ± 184†	4.3E-15 ± 90†	1.0E-15 ± 509†	3.1E-15 ± 99†
04/30/97-05/28/97	3.7E-14 ± 92†	1.5E-15 ± 90†	2.0E-15 ± 36†	7.1E-14 ± 84†	4.0E-15 ± 107†	2.6E-15 ± 83†	2.2E-14 ± 20†		7.0E-16 ± 455†
05/28/97-07/02/97	5.8E-14 ± 45†	1.7E-15 ± 82†	3.6E-16 ± 118†	9.0E-15 ± 189†	2.2E-15 ± 149†	1.6E-15 ± 118†	2.0E-15 ± 109†	2.3E-15 ± 116†	6.5E-16 ± 376†
07/02/97-07/30/97	1.3E-14 ± 507†	1.5E-15 ± 141†	7.9E-16 ± 65†	7.0E-15 ± 182†	9.7E-16 ± 491†	3.3E-16 ± 472†	6.1E-15 ± 65†	4.2E-16 ± 999†	5.9E-16 ± 554†
07/30/97-08/27/97	1.5E-13 ± 33†	3.2E-16 ± 200†	2.1E-15 ± 38†	4.3E-15 ± 358†	3.8E-15 ± 121†	9.5E-16 ± 133†	1.8E-14 ± 24†	5.6E-16 ± 999†	3.1E-15 ± 121†
08/27/97-10/01/97	7.3E-14 ± 38†	2.1E-15 ± 114†	9.4E-16 ± 52†	3.0E-15 ± 386†	2.0E-15 ± 168†	8.1E-17 ± 999†	6.9E-15 ± 39†	2.7E-15 ± 101†	1.2E-15 ± 216†
10/01/97-10/29/97	7.6E-14 ± 44†	9.3E-16 ± 268†	5.8E-16 ± 65†	1.3E-14 ± 74†	2.8E-15 ± 187†	6.8E-16 ± 275†	9.7E-15 ± 45†	5.6E-15 ± 82†	2.1E-15 ± 165†
10/29/97-11/26/97	4.1E-14 ± 59†	1.3E-15 ± 103†	7.3E-16 ± 59†	2.2E-14 ± 73†	2.2E-15 ± 187†	1.4E-15 ± 137†	1.0E-14 ± 38†	7.9E-15 ± 90†	3.2E-15 ± 105†
11/26/97-12/30/97	1.3E-12 ± 3†	2.2E-15 ± 999†	2.1E-15 ± 106†	8.2E-14 ± 214†	3.0E-14 ± 154†	2.9E-15 ± 671†	3.1E-15 ± 504†	8.8E-14 ± 86†	3.6E-15 ± 999†
12/30/97-01/26/98									

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

100-K-5M: KW LOW BAY WEST (RV10) (X235)

01/01/97 to 12/31/97

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Warning Levels:

On/Off Dates	7.0E-14 Pu-238 μCi/ml	6.0E-14 Pu239/40 μCi/ml	Pu-241 μCi/ml	Am-241 μCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
11/27/96-01/02/97	3.0E-17 ± 35†	1.4E-16 ± 18†	2.0E-15 ± 44†	1.9E-16 ± 15†	839.4	2.0	100728	4300
01/02/97-01/29/97	1.5E-17 ± 57†	1.2E-16 ± 20†	2.6E-15 ± 40†	1.3E-16 ± 19†	619.7	2.0	74364	4300
01/29/97-02/26/97	1.3E-17 ± 53†	6.5E-17 ± 25†	1.7E-15 ± 53†	7.8E-17 ± 21†	672.8	2.0	80732	4300
02/26/97-04/02/97	1.0E-17 ± 63†	3.6E-17 ± 32†	1.0E-15 ± 81†	2.8E-16 ± 13†	840.4	2.0	108946	4300
04/02/97-04/30/97	9.5E-18 ± 70†	8.9E-17 ± 23†	1.8E-15 ± 56†	9.3E-17 ± 23†	671.1	2.0	80525	4300
04/30/97-05/28/97	4.7E-17 ± 30†	2.6E-16 ± 15†		3.0E-16 ± 14†	672.8	2.0	80731	4300
05/28/97-07/02/97	4.4E-18 ± 113†	1.1E-17 ± 56†	7.2E-16 ± 111†	1.4E-17 ± 54†	838.7	2.0	100640	4300
07/02/97-07/30/97	3.3E-19 ± 67†	1.3E-17 ± 57†	9.7E-16 ± 130†	2.1E-17 ± 46†	672.9	2.0	80787	4300
07/30/97-08/27/97	2.9E-18 ± 131†	1.7E-17 ± 45†	8.7E-16 ± 120†	3.8E-17 ± 100†	672.8	2.0	80727	4300
08/27/97-10/01/97	2.1E-18 ± 120†	3.2E-17 ± 28†	6.2E-16 ± 132†	2.8E-17 ± 37†	838.7	2.0	100640	4300
10/01/97-10/29/97	3.5E-18 ± 116†	1.9E-17 ± 47†	2.7E-16 ± 385†	2.7E-17 ± 35†	670.3	2.0	80433	4300
10/29/97-11/26/97	3.6E-19 ± 972†	3.9E-18 ± 68†	6.9E-16 ± 121†	2.6E-17 ± 45†	670.2	2.0	80423	4300
12/26/97-12/30/97	1.7E-17 ± 73†	6.3E-18 ± 342†	2.1E-15 ± 434†	6.4E-17 ± 242†	64.8	2.0	7775	339
12/30/97-01/26/98					-8103.3	0.0		0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

HNF-2665 Rev. 0

04/21/98 12:45

100-K-5H: KW MEZZ. (RV 687) (Z236)

01/01/97 to 12/31/97

Page 1

Warning Levels:

On/Off Dates	Total α μCi/ml	Total β μCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
12/26/96-01/02/97	2.5E-15 ± 30%	4.0E-14 ± 13%	168.2	2.0	20184	27000
01/02/97-01/08/97	1.1E-15 ± 30%	2.8E-14 ± 15%	139.6	2.0	16752	27000
01/08/97-01/15/97	4.2E-15 ± 25%	4.0E-14 ± 13%	167.7	2.0	20124	27000
01/15/97-01/22/97	9.0E-15 ± 18%	9.3E-14 ± 11%	169.1	2.0	20298	27000
01/22/97-01/29/97	3.2E-15 ± 29%	5.9E-14 ± 12%	143.3	2.0	17198	27000
01/29/97-02/05/97	5.2E-15 ± 22%	4.4E-14 ± 13%	168.6	2.0	20235	27000
02/05/97-02/12/97	1.0E-14 ± 17%	1.0E-13 ± 11%	167.6	2.0	20117	27000
02/12/97-02/19/97	1.6E-15 ± 36%	3.4E-14 ± 14%	168.5	2.0	20215	27000
02/19/97-02/26/97	2.0E-15 ± 33%	4.4E-14 ± 13%	167.8	2.0	20135	27000
02/26/97-03/05/97	1.4E-15 ± 39%	2.7E-14 ± 14%	167.8	2.0	20137	27000
03/05/97-03/12/97	1.3E-15 ± 41%	1.4E-14 ± 18%	168.4	2.0	20201	27000
03/12/97-03/19/97	2.1E-15 ± 32%	3.7E-14 ± 13%	167.1	2.0	20049	27000
03/19/97-03/26/97	1.6E-15 ± 36%	1.9E-14 ± 16%	168.3	2.0	20195	27000
03/26/97-04/02/97	1.0E-15 ± 46%	1.2E-14 ± 20%	168.9	2.0	20269	27000
04/02/97-04/09/97	3.6E-15 ± 32%	1.9E-14 ± 16%	167.2	2.0	20061	27000
04/09/97-04/16/97	4.6E-15 ± 31%	3.1E-14 ± 15%	167.8	2.0	20131	27000
04/16/97-04/23/97	3.6E-15 ± 31%	1.8E-14 ± 16%	168.6	2.0	20235	27000
04/23/97-04/30/97	1.7E-15 ± 50%	1.8E-14 ± 16%	167.7	2.0	20121	27000
04/30/97-05/07/97	2.9E-15 ± 46%	3.5E-14 ± 15%	168.6	2.0	20235	27000
05/07/97-05/14/97	3.0E-15 ± 44%	3.3E-14 ± 15%	167.6	2.0	20117	27000
05/14/97-05/21/97	1.9E-15 ± 50%	2.0E-14 ± 16%	168.7	2.0	20247	27000
05/21/97-05/28/97	6.7E-15 ± 106%	2.7E-13 ± 13%	167.4	2.0	20083	27000
05/28/97-06/04/97	2.3E-15 ± 37%	1.6E-14 ± 16%	168.3	2.0	20193	27000
06/04/97-06/11/97	2.4E-15 ± 36%	1.8E-14 ± 16%	168.1	2.0	20177	27000
06/11/97-06/18/97	2.5E-15 ± 34%	1.3E-14 ± 17%	167.0	2.0	20043	27000
06/18/97-06/25/97	1.8E-15 ± 40%	8.7E-15 ± 19%	169.6	2.0	20355	27000
06/25/97-07/02/97	1.8E-15 ± 40%	1.0E-14 ± 19%	166.0	2.0	19923	27000
07/02/97-07/09/97	2.3E-15 ± 37%	1.7E-14 ± 16%	167.6	2.0	20113	27000
07/09/97-07/16/97	1.1E-15 ± 60%	1.5E-14 ± 17%	167.5	2.0	20099	27000
07/16/97-07/23/97	2.1E-15 ± 44%	2.8E-14 ± 15%	169.5	2.0	20419	10500
07/23/97-07/30/97	2.8E-15 ± 39%	2.8E-14 ± 15%	167.2	2.0	20065	10500
07/30/97-08/06/97	3.8E-15 ± 33%	3.3E-14 ± 15%	169.1	2.0	20289	10400
08/06/97-08/13/97	4.1E-15 ± 29%	2.8E-14 ± 15%	165.3	2.0	19833	10400
08/13/97-08/20/97	2.0E-15 ± 42%	2.2E-14 ± 15%	169.3	2.0	20309	10400
08/20/97-08/27/97	1.6E-15 ± 50%	1.9E-14 ± 16%	169.1	2.0	20285	10400
08/27/97-09/03/97	3.8E-15 ± 31%	2.8E-14 ± 15%	166.5	2.0	19983	10400
09/03/97-09/10/97	3.7E-15 ± 32%	3.0E-14 ± 15%	169.0	2.0	20275	10400
09/10/97-09/17/97	2.1E-15 ± 40%	1.6E-14 ± 16%	167.1	2.0	20045	10400
09/17/97-09/24/97	2.6E-15 ± 54%	4.5E-14 ± 15%	114.5	2.0	13739	10400
09/24/97-10/01/97	2.8E-15 ± 39%	3.3E-14 ± 15%	166.4	2.0	19967	10400
10/01/97-10/08/97	1.8E-15 ± 42%	1.7E-14 ± 16%	167.3	2.0	20075	10400
10/08/97-10/15/97	1.9E-15 ± 43%	2.1E-14 ± 16%	167.8	2.0	20135	10400
10/15/97-10/22/97	5.1E-15 ± 31%	4.7E-14 ± 14%	168.7	2.0	20243	10400
10/22/97-10/29/97	2.8E-15 ± 40%	3.2E-14 ± 15%	165.5	2.0	19859	10400
10/29/97-11/05/97	2.5E-15 ± 39%	2.9E-14 ± 15%	167.2	2.0	20067	10400
11/05/97-11/12/97	4.8E-15 ± 29%	4.0E-14 ± 15%	167.7	2.0	20119	10400
11/12/97-11/19/97	1.0E-14 ± 24%	7.2E-14 ± 14%	167.6	2.0	20107	10400
11/19/97-11/26/97	1.6E-15 ± 48%	1.9E-14 ± 16%	168.1	2.0	20169	10400
11/26/97-11/27/97	7.7E-15 ± 39%	2.3E-14 ± 24%	36.9	2.0	4505	10400
11/27/97-12/29/97			0.0	0.0	0	0
12/29/97-12/30/97	2.8E-15 ± 85%	1.9E-14 ± 32%	25.2	2.0	3019	10400
12/30/97-01/26/98			0.0	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

100-K-5W: KW NEZZ (RV 6&7) (X236)

01/01/97 to 12/31/97

Page 1

Warning Levels:

On/Off Dates	K-40 μCi/m	1.0E-08 Co-60 μCi/m	3.0E-11 Sr-90 μCi/m	3.0E-09 Ru-106 μCi/m	Sb-125 μCi/m	1.0E-09 Cs-134 μCi/m	2.0E-09 Cs-137 μCi/m	Eu-154 μCi/m	Eu-155 μCi/m
11/27/96-01/02/97	5.3E-14 ± 553	1.4E-15 ± 904	3.4E-15 ± 284	1.6E-14 ± 744	-2.5E-15 ± 1764	-2.0E-16 ± 9384	1.1E-14 ± 294	1.2E-16 ± 9994	1.3E-15 ± 2074
01/02/97-01/29/97	5.4E-14 ± 714	1.5E-15 ± 904	3.5E-15 ± 354	-1.5E-14 ± 974	-8.2E-16 ± 5994	-1.3E-15 ± 1504	1.5E-14 ± 284	-4.2E-16 ± 9994	5.4E-16 ± 5764
01/29/97-02/26/97	7.1E-14 ± 684	-1.5E-16 ± 9994	3.7E-15 ± 344	-3.7E-15 ± 3574	2.0E-15 ± 2314	-1.5E-15 ± 1244	2.4E-14 ± 204	-2.6E-15 ± 2224	3.0E-15 ± 994
02/26/97-04/02/97	7.4E-14 ± 744	4.6E-17 ± 9994	1.5E-15 ± 364	3.4E-15 ± 3174	-1.3E-15 ± 3134	7.3E-16 ± 1534	1.2E-14 ± 254	-4.2E-15 ± 1104	9.1E-16 ± 2824
04/02/97-04/30/97	2.2E-14 ± 1484	1.1E-15 ± 1164	9.6E-16 ± 624	1.1E-15 ± 894	1.9E-15 ± 2064	-1.3E-15 ± 1704	4.7E-15 ± 704	2.8E-15 ± 1164	-4.4E-15 ± 724
04/30/97-05/28/97	6.0E-14 ± 584	7.3E-16 ± 2904	5.3E-15 ± 294	5.0E-15 ± 3934	3.2E-15 ± 1544	6.1E-16 ± 2804	7.2E-14 ± 154	2.7E-15 ± 1164	1.9E-15 ± 154
05/28/97-07/02/97	4.4E-15 ± 8974	-7.2E-16 ± 1564	4.4E-16 ± 994	-8.8E-16 ± 9804	-2.3E-15 ± 1444	5.7E-16 ± 2254	2.1E-15 ± 724	-1.8E-15 ± 2684	2.1E-15 ± 1074
07/02/97-07/30/97	7.1E-13 ± 354	-2.9E-16 ± 6284	9.0E-16 ± 894	8.8E-15 ± 1394	4.7E-15 ± 844	7.4E-16 ± 2514	7.7E-15 ± 344	-2.6E-15 ± 1564	-4.6E-15 ± 724
07/30/97-08/27/97	7.2E-14 ± 484	-1.3E-15 ± 1874	9.9E-16 ± 534	-2.4E-15 ± 9054	-3.6E-15 ± 1404	8.0E-16 ± 2244	8.5E-15 ± 444	1.1E-15 ± 5124	-1.6E-15 ± 1994
08/27/97-10/01/97	5.9E-14 ± 564	-5.0E-16 ± 4454	1.4E-15 ± 444	-4.2E-15 ± 3574	-1.1E-15 ± 3174	-2.7E-16 ± 5954	1.1E-14 ± 274	-9.1E-15 ± 784	1.6E-15 ± 1484
10/01/97-10/29/97	8.5E-14 ± 414	-4.6E-16 ± 5854	7.0E-16 ± 624	-2.1E-14 ± 864	-2.3E-15 ± 2004	-8.3E-17 ± 9994	8.1E-15 ± 414	2.8E-15 ± 1164	-8.1E-16 ± 4274
10/29/97-11/26/97	1.8E-14 ± 434	-1.8E-15 ± 1274	8.4E-16 ± 564	1.5E-15 ± 6424	5.0E-15 ± 684	7.6E-16 ± 1794	9.8E-15 ± 304	5.3E-15 ± 1304	-3.2E-15 ± 1084
11/26/97-12/30/97	6.9E-13 ± 474	1.1E-15 ± 1164	8.1E-16 ± 404	1.3E-14 ± 9994	2.9E-15 ± 9994	2.4E-15 ± 774	1.5E-14 ± 764	2.1E-14 ± 2904	1.5E-15 ± 9994
12/30/97-01/26/98									

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

100-K-5W: KW NEZZ (RV 6&7) (X236)

01/01/97 to 12/31/97

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Warning Levels:

On/Off Dates	7.0E-14 Pu-238 μCi/m	6.0E-14 Pu239/40 μCi/m	Pu-241 μCi/m	Am-241 μCi/m	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
11/27/96-01/02/97	1.0E-16 ± 184	7.0E-16 ± 114	9.4E-15 ± 184	4.9E-16 ± 124	839.4	2.0	100728	27000
01/02/97-01/29/97	2.5E-17 ± 364	1.7E-16 ± 164	3.0E-15 ± 374	1.9E-16 ± 184	619.7	2.0	74364	27000
01/29/97-02/26/97	2.3E-17 ± 394	1.0E-16 ± 204	2.6E-15 ± 354	1.0E-16 ± 184	672.5	2.0	80706	27000
02/26/97-04/02/97	1.1E-17 ± 474	9.0E-17 ± 194	1.4E-15 ± 614	1.5E-16 ± 164	840.5	2.0	100852	27000
04/02/97-04/30/97	9.4E-18 ± 624	8.3E-17 ± 214	1.0E-15 ± 994	9.1E-17 ± 234	671.3	2.0	80549	27000
04/30/97-05/28/97	4.3E-17 ± 344	2.4E-16 ± 164	3.7E-15 ± 344	2.8E-16 ± 164	672.4	2.0	80683	27000
05/28/97-07/02/97	2.6E-17 ± 354	6.8E-18 ± 694	2.0E-16 ± 5004	4.4E-17 ± 324	839.1	2.0	100692	27000
07/02/97-07/30/97	5.1E-18 ± 974	3.4E-17 ± 344	1.1E-15 ± 1084	3.4E-17 ± 434	672.2	2.0	80661	18000
07/30/97-08/27/97	5.1E-18 ± 1034	1.5E-17 ± 514	8.1E-16 ± 1094	2.2E-17 ± 734	672.7	2.0	80717	10400
08/27/97-10/01/97	7.5E-18 ± 624	4.1E-17 ± 264	3.0E-16 ± 2964	4.4E-17 ± 344	783.4	2.0	94004	10400
10/01/97-10/29/97	1.3E-17 ± 494	8.6E-17 ± 204	1.6E-15 ± 714	1.2E-16 ± 194	669.3	2.0	80313	10400
10/29/97-11/26/97	1.9E-18 ± 1494	1.5E-17 ± 484	1.1E-15 ± 684	2.0E-17 ± 434	671.0	2.0	80511	10400
11/26/97-12/30/97	1.9E-18 ± 8064	2.4E-16 ± 364	9.0E-15 ± 1214	3.6E-16 ± 714	64.4	2.0	7727	815
12/30/97-01/26/98					0.0	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/27/98

15:59

100-K-KER: 1706-KER -27 ft Lab Exhaust (X244, Y244)

01/01/97 through 12/31/97

Total System Flow: 1.6E+09 Liters = 5.7E+07 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	ND	<0.0E+00	n/a
Total β	ND	<0.0E+00	n/a

04/21/98 12:45

100-K-KER: 1706-KER -27 ft Lab Exhaust (Y244)

01/01/97 to 12/31/97

Page 1

Warning Levels:				Collect	Sample	Sample	Stack
On/Off Dates		Total α $\mu\text{Ci}/\text{m}^3$	Total β $\mu\text{Ci}/\text{m}^3$	Time Hours	FlowRate CFH	Volume ft ³	FlowRate CFH
11/12/96-01/01/97				0.0	0.0	0	0
01/01/97-06/11/97				0.0	0.0	0	0
06/11/97-06/27/97		5.0E-17 $\pm$ 201%	2.6E-16 $\pm$ 104%	381.3	2.0	45748	2500
06/27/97-12/31/97				0.0	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCS).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/27/98

16:00

100-K-LAB: 1706-KE Lab Exhaust (X243, Y243)

01/01/97 through 12/31/97

Total System Flow: 9.1E+10 Liters = 3.2E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	1.9E-07	1.6E-15	3.7E-15
Total β	1.1E-06	9.0E-15	2.2E-14

04/21/98 12:45

100-K-LAB: 1706-KE Lab Exhaust (Y243)

01/01/97 to 12/31/97

Page 1

Warning Levels:				Collect	Sample	Sample	Stack
On/Off	Dates	Total α	Total β	Time	FlowRate	Volume	FlowRate
		$\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$	Hours	CFH	ft ³	CFH
11/12/96-01/01/97				0.0	0.0	0	0
01/01/97-06/11/97				0.0	0.0	0	0
06/11/97-06/27/97	2.5E-16 $\pm$ 70%	2.2E-16 $\pm$ 116%		387.3	2.0	46468	12000
06/27/97-07/15/97				0.0	0.0	0	0
07/15/97-09/08/97				0.0	0.0	0	12000
09/08/97-10/01/97	3.2E-17 $\pm$ 282%	7.5E-16 $\pm$ 35%		552.5	2.0	66297	12000
11/05/97-12/03/97	3.7E-15 $\pm$ 21%	2.2E-14 $\pm$ 14%		666.1	2.0	79929	12000
12/03/97-12/31/97				0.0	0.0	0	12000^^

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

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2.3 100-N Area

ENVIRONMENTAL RELEASE SUMMARY REPORT

05/09/98

10:23

1AN116: 116-N STACK PARTICULATE (X211, Y211, Y212, Y213)

01/01/97 through 12/31/97

Total System Flow: 1.3E+12 Liters = 4.5E+10 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Co-60	ND	<0.0E+00	n/a
Sr-90	2.8E-06	1.6E-15	5.8E-15
Cs-137	ND	<0.0E+00	n/a
Pu-238	ND	<0.0E+00	n/a
Pu239/40	2.6E-08	1.5E-17	7.3E-17
Am-241	2.2E-07	1.3E-16	2.5E-16
Total α	1.3E-07	7.3E-17	1.2E-15
Total β	5.8E-06	3.3E-15	2.4E-14

04/21/98 12:45

1A1116: 116-N STACK PARTICULATE (Y211)

01/01/97 to 12/31/97

Page 1

Warning Levels:

On/Off Dates	Total α $\mu\text{Ci}/\text{m}^3$	Total B $\mu\text{Ci}/\text{m}^3$	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft ³	Stack FlowRate CFM
01/01/97-01/02/97				0.0	0	60000
01/02/97-01/15/97	4.1E-17 $\pm$ 470%	5.7E-15 $\pm$ 20%	313.1	1.2	22592	60000
01/15/97-01/29/97	1.2E-15 $\pm$ 37%	1.5E-14 $\pm$ 14%	340.6	1.2	24522	47896
01/29/97-02/12/97	7.5E-16 $\pm$ 46%	7.7E-15 $\pm$ 18%	333.3	1.2	24039	60000
02/12/97-02/26/97	9.6E-17 $\pm$ 145%	9.6E-16 $\pm$ 64%	336.1	1.2	24248	60000
02/26/97-03/12/97	-1.0E-16 $\pm$ 270%	5.5E-16 $\pm$ 94%	332.0	1.2	23924	60000
03/12/97-03/26/97	1.7E-16 $\pm$ 214%	1.9E-15 $\pm$ 36%	340.6	1.2	24522	61178
03/26/97-04/09/97	2.0E-17 $\pm$ 999%	3.3E-15 $\pm$ 27%	329.1	1.2	23715	75000
04/09/97-04/16/97	2.0E-16 $\pm$ 450%	1.5E-15 $\pm$ 92%	173.0	1.2	12453	75000
04/16/97-04/30/97	4.6E-16 $\pm$ 140%	2.3E-16 $\pm$ 260%	335.5	1.2	24155	75000
04/30/97-05/14/97	2.8E-16 $\pm$ 200%	1.0E-15 $\pm$ 60%	335.9	1.2	24186	75000
05/14/97-05/28/97	1.0E-16 $\pm$ 450%	3.4E-15 $\pm$ 30%	335.3	1.2	24144	75000
05/28/97-06/11/97	1.0E-16 $\pm$ 450%	1.3E-15 $\pm$ 52%	334.6	1.2	24091	97242
06/11/97-06/25/97	5.1E-16 $\pm$ 130%	4.0E-16 $\pm$ 150%	333.0	1.2	24003	120000
06/25/97-07/09/97	-3.8E-17 $\pm$ 870%	5.2E-16 $\pm$ 120%	341.5	1.2	24587	119841
07/09/97-07/23/97	1.4E-16 $\pm$ 330%	6.6E-16 $\pm$ 100%	337.1	1.2	24273	120000
07/23/97-08/06/97	-3.9E-17 $\pm$ 870%	8.1E-16 $\pm$ 88%	333.2	1.2	23991	120000
08/06/97-08/20/97	1.4E-16 $\pm$ 340%	2.2E-15 $\pm$ 38%	336.5	1.2	24227	120000
08/20/97-09/03/97	-4.4E-17 $\pm$ 780%	9.4E-16 $\pm$ 63%	336.8	1.2	24249	120000
09/03/97-09/17/97	-4.4E-17 $\pm$ 780%	1.1E-15 $\pm$ 57%	332.5	1.2	23940	120000
09/17/97-10/01/97	-4.3E-17 $\pm$ 780%	1.9E-15 $\pm$ 41%	339.2	1.2	24423	120000
10/01/97-10/15/97	2.9E-16 $\pm$ 200%	3.0E-15 $\pm$ 31%	331.6	1.2	23875	120000
10/15/97-10/30/97	2.7E-16 $\pm$ 200%	2.4E-14 $\pm$ 10%	358.0	1.2	25794	120000
10/30/97-11/12/97	3.0E-16 $\pm$ 200%	2.4E-15 $\pm$ 37%	315.0	1.2	22713	68781
11/12/97-11/25/97	1.1E-16 $\pm$ 440%	1.6E-15 $\pm$ 48%	309.9	1.2	22312	60000
11/25/97-12/10/97	9.2E-16 $\pm$ 80%	3.5E-15 $\pm$ 27%	364.6	1.2	26251	60000
12/10/97-12/22/97	1.3E-16 $\pm$ 440%	2.0E-15 $\pm$ 43%	284.8	1.2	20501	60000
12/22/97-12/23/97			0.0	0.0	0	60000
12/23/97-12/29/97			0.0	0.0	0	15000
12/29/97-12/31/97			0.0	0.0	0	60000

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

HNF-2665 Rev. 0

04/21/98 12:45

1AM116: 116-N STACK PARTICULATE (X211)

01/01/97 to 12/31/97

Page 1

Warning Levels:	1.0E-08 Co-60 µCi/ml	3.0E-11 Sr-90 µCi/ml	2.0E-09 Cs-137 µCi/ml	7.0E-14 Pu-238 µCi/ml	6.0E-14 Pu-239/40 µCi/ml	Am-241 µCi/ml	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft3	Stack FlowRate CFM
On/Off Dates										
01/01/97-01/02/97							0.0	0.0	0	60000
01/02/97-01/15/97	? 2.7E-15 ± 108x	2.4E-16 ± 209x	? 1.4E-15 ± 156x	-4.1E-18 ± 116x	3.1E-17 ± 156x	-1.5E-18 ± 200x	313.1	1.2	22502	60000
01/15/97-01/29/97	-5.6E-16 ± 617x	-1.7E-16 ± 205x	? 3.9E-15 ± 47x		1.1E-17 ± 219x	8.2E-18 ± 298x	340.6	1.2	24522	47896
01/29/97-02/12/97	? 7.0E-16 ± 401x	-7.5E-17 ± 450x	? 6.1E-16 ± 418x	1.7E-17 ± 220x	-3.0E-18 ± 142x	4.3E-17 ± 123x	333.3	1.2	24039	60000
02/12/97-02/26/97	? 2.7E-15 ± 77x	-1.1E-16 ± 286x	? 9.1E-16 ± 252x	1.9E-17 ± 201x	-1.5E-18 ± 200x	-2.1E-18 ± 142x	336.1	1.2	24248	60000
02/26/97-03/12/97	? 1.8E-16 ± 999x	1.3E-15 ± 44x	? 2.2E-15 ± 85x	3.8E-17 ± 155x	-1.7E-18 ± 201x	-2.6E-18 ± 142x	332.0	1.2	23924	60000
03/12/97-03/26/97	? 1.6E-15 ± 166x	2.2E-15 ± 35x	-4.5E-16 ± 599x	-1.5E-18 ± 200x	1.4E-17 ± 266x	1.3E-17 ± 219x	340.6	1.2	24522	61178
03/26/97-04/09/97	? 3.9E-15 ± 64x	1.5E-15 ± 40x	? 1.9E-15 ± 139x	-5.3E-18 ± 117x	-5.3E-18 ± 117x	2.4E-17 ± 179x	329.1	1.2	23715	75000
04/09/97-06/11/97	? 3.6E-16 ± 73x	-5.5E-16 ± 100x	? 1.9E-16 ± 110x	? 2.6E-17 ± 140x	1.5E-17 ± 100x	8.7E-17 ± 43x	1514.3	1.2	109026	7914
06/11/97-07/09/97	? 7.8E-16 ± 120x	? 1.4E-15 ± 100x	-1.9E-16 ± 360x	? 8.7E-17 ± 78x	7.3E-17 ± 62x	2.0E-16 ± 65x	674.9	1.2	48589	119919
07/09/97-08/05/97	? 8.0E-16 ± 140x	? 2.6E-15 ± 60x	-9.5E-14 ± 100x	? 8.0E-17 ± 85x	? 3.5E-17 ± 110x	2.1E-16 ± 63x	670.4	1.2	48263	120000
08/05/97-09/03/97	? 8.2E-16 ± 91x	3.9E-15 ± 40x	? 4.6E-16 ± 100x	? 8.2E-17 ± 130x	6.4E-17 ± 71x	2.5E-16 ± 64x	673.3	1.2	48475	120000
09/03/97-10/01/97	-3.3E-16 ± 250x	5.8E-15 ± 30x	-3.5E-16 ± 220x	? 2.8E-17 ± 190x	? 2.8E-17 ± 120x	2.0E-16 ± 66x	671.7	1.2	48361	120000
10/01/97-10/30/97	? 2.1E-16 ± 370x	3.8E-15 ± 40x	? 3.1E-16 ± 230x	? 5.7E-17 ± 88x	2.8E-17 ± 100x	1.8E-16 ± 66x	689.8	1.2	49667	120000
10/30/97-11/25/97	? 8.5E-17 ± 890x	? 1.2E-15 ± 110x	-1.0E-13 ± 100x	? 7.6E-17 ± 35x	8.6E-18 ± 350x	? 2.1E-16 ± 73x	625.4	1.2	45024	64429
11/25/97-12/22/97	? 5.1E-16 ± 130x	? 1.7E-15 ± 130x	-3.6E-17 ± 999x	? 5.0E-17 ± 120x	? 1.4E-17 ± 240x	? 2.0E-16 ± 77x	649.4	1.2	46751	60000
12/22/97-12/23/97							0.0	0.0	0	60000
12/23/97-12/29/97							0.0	0.0	0	15000
12/29/97-12/31/97							0.0	0.0	0	60000

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:50

1AN07ROOF: 107-N EXHAUST PARTICULATE (Y265, Y266)

01/01/97 through 12/31/97

Total System Flow: $1.1\text{E}+11$ Liters = $3.8\text{E}+09$ Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	ND	$<0.0\text{E}+00$	n/a
Total β	$1.8\text{E}-07$	$1.2\text{E}-15$	$1.2\text{E}-15$

04/21/98 12:45		1AN07900F: 107-N EXHAUST PARTICULATE (1265)		01/01/97 to 12/31/97		Page 1	
Warning Levels:		Total g		Collect		Sample	
On/Off Dates		µCi/ml		Hours		Flowrate	
01/01/97-04/22/97		8.5E-17 ± 200%		74.0		0.0	
04/22/97-05/23/97		1.2E-15 ± 27%		0.0		0.0	
05/23/97-12/31/97				0.0		0.0	
						Stack	
						Flowrate	
						CFH	
						7300	
						7300	
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2.4 200 East Area

2.4.1 PUREX

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:20

291-A-1: 291-A-1 Purex Main Stack, Primary AgZ (A007, A552)

01/01/97 through 12/31/97

Total System Flow: 7.9E+11 Liters = 2.8E+10 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.52
 Halogens: 0.87

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	1.5E-05	9.7E-15	2.5E-14
Ru-106	ND	<0.0E+00	n/a
Sn-113	ND	<0.0E+00	n/a
Sb-125	ND	<0.0E+00	n/a
I-129	1.2E-03	1.3E-12	3.1E-12
Cs-134	ND	<0.0E+00	n/a
Cs-137	3.1E-05	2.2E-14	2.5E-14
Pu-238	1.5E-07	1.0E-16	2.0E-16
Pu239/40	3.1E-06	2.0E-15	3.8E-15
Pu-241	6.4E-06	4.2E-15	7.9E-15
Am-241	4.2E-06	2.7E-15	4.3E-15
Total α	7.4E-06	4.8E-15	1.3E-14
Total β	4.7E-05	3.1E-14	6.9E-14

01/01/97 to 12/31/97

291-A-1: PUREX MAIN STACK (A552)

Page 1

Warning Levels: On/off Dates
 Total α Total β
 2.0E-13 9.0E-11
 μCi/mI Hours
 Collect Sample Sample
 Time Flowrate Volume
 μCi CFM CFM
 Stack Sample
 Flowrate Volume
 CFM CFM

12/28/96-02/03/97	7.1E-15 ± 11X	6.9E-14 ± 2.9E	891.7	2.0	106737	94110	80250	59494	53457	80546	48933	100132	80530	44083	43963	82858	97860	80066	47024	46875	101385	49788
03/03/97-03/03/97	4.2E-15 ± 12X	2.5E-14 ± 5.5E	671.0	2.0	99767	53457	80546	48933	100132	80530	44083	43963	82858	97860	80066	47024	46875	101385	49788	80401	101385	49788
04/07/97-05/05/97	1.3E-14 ± 9.1X	6.4E-14 ± 3.5E	673.5	2.0	80546	48933	100132	80530	44083	43963	82858	97860	80066	47024	46875	101385	49788	80401	101385	49788	80401	101385
05/05/97-06/02/97	4.6E-15 ± 15X	2.7E-14 ± 5.4E	667.6	2.0	79656	48933	100132	80530	44083	43963	82858	97860	80066	47024	46875	101385	49788	80401	101385	49788	80401	101385
06/02/97-07/07/97	2.5E-15 ± 18X	2.7E-14 ± 5.4E	667.6	2.0	79656	48933	100132	80530	44083	43963	82858	97860	80066	47024	46875	101385	49788	80401	101385	49788	80401	101385
07/07/97-08/04/97	1.8E-15 ± 24X	1.2E-14 ± 8.3E	673.7	2.0	80530	44083	43963	82858	97860	80066	47024	46875	101385	49788	80401	101385	49788	80401	101385	49788	80401	101385
08/04/97-09/02/97	1.3E-14 ± 8.8X	3.8E-14 ± 4.5E	697.5	2.0	80530	44083	43963	82858	97860	80066	47024	46875	101385	49788	80401	101385	49788	80401	101385	49788	80401	101385
09/02/97-10/06/97	2.1E-15 ± 20X	1.5E-14 ± 6.6E	818.0	2.0	97860	80066	47024	46875	101385	49788	80401	101385	49788	80401	101385	49788	80401	101385	49788	80401	101385	49788
10/06/97-11/03/97	2.1E-15 ± 22X	1.8E-14 ± 6.6E	668.0	2.0	80066	47024	46875	101385	49788	80401	101385	49788	80401	101385	49788	80401	101385	49788	80401	101385	49788	80401
11/03/97-12/01/97	7.5E-16 ± 38X	4.9E-15 ± 13E	672.0	2.0	80401	101385	49788	80401	101385	49788	80401	101385	49788	80401	101385	49788	80401	101385	49788	80401	101385	49788
12/01/97-01/05/98	2.0E-15 ± 20X	1.0E-14 ± 7.8E	838.9	2.0	101385	49788	80401	101385	49788	80401	101385	49788	80401	101385	49788	80401	101385	49788	80401	101385	49788	80401

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCB). ? Questionable Result - No Peak Detected.

~ Stack Flowrate of previous Sample used.

Page 1

01/01/97 to 12/31/97

291-A-1, 291-A-1 Purex Main Stack, Primary Agt (A007)

04/21/98 12:45

Warning Levels:

On/Off Dates

3.0E-11
3.0E-11
µCi/ml1.0E-09
1.0E-09
µCi/ml7.0E-11
7.0E-11
µCi/ml4.0E-10
4.0E-10
µCi/mlCollect
HoursSample
Flowrate
CFHSample
Volume
litersStack
Flowrate
CFHStack
Flowrate
CFHStack
Flowrate
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SYMBOL KEY: * Concentration exceeds Warning Level (factored OCS). ? Questionable Result - No Peak Detected.

~~ Stack Flowrate of previous Sample used.

04/21/98 12:45

291-A-1: PUREX MAIN STACK (QC) (X552)

01/01/97 to 12/31/97

Page 1

Warning Levels:	9.0E-11 Sr-90 μCi/ml	3.0E-09 Ru-106 μCi/ml	1.0E-08 Sn-113 μCi/ml	1.0E-08 Sb-125 μCi/ml	2.0E-09 Cs-134 μCi/ml	4.0E-09 Cs-137 μCi/ml	3.0E-13 Pu-238 μCi/ml	2.0E-13 Pu239/40 μCi/ml	1.0E-11 Pu-241 μCi/ml
On/Off Dates	μCi/ml	μCi/ml	μCi/ml	μCi/ml	μCi/ml	μCi/ml	μCi/ml	μCi/ml	μCi/ml
12/28/96-03/03/97	2.5E-14 ± 13%	-1.6E-16 ± 660%	-6.0E-17 ± 210%	? 3.0E-16 ± 120%	-3.5E-17 ± 350%	2.4E-14 ± 18%	9.4E-17 ± 30%	3.8E-15 ± 16%	4.5E-15 ± 60%
03/03/97-06/02/97	7.3E-15 ± 13%	? 2.5E-16 ± 330%	-5.1E-17 ± 220%	? 3.0E-16 ± 100%	-5.6E-17 ± 170%	2.5E-14 ± 18%	2.0E-16 ± 18%	3.0E-15 ± 7.0%	7.9E-15 ± 25%
06/02/97-09/02/97	3.5E-15 ± 13%	-2.1E-17 ± 999%	? 1.1E-17 ± 920%	? 1.0E-16 ± 210%	? 8.7E-17 ± 100%	1.2E-14 ± 19%	6.0E-17 ± 54%	9.4E-16 ± 19%	2.9E-15 ± 30%
09/02/97-01/05/98	3.0E-15 ± 16%	-1.7E-16 ± 300%	? 3.4E-17 ± 190%	-2.7E-17 ± 560%	? 5.7E-18 ± 999%	8.2E-15 ± 14%	5.1E-17 ± 59%	5.6E-16 ± 20%	1.9E-15 ± 30%

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

291-A-1: PUREX MAIN STACK (QC) (X552)

01/01/97 to 12/31/97

Page 2

Warning Levels:	2.0E-13 Am-241 μCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
On/Off Dates	μCi/ml	Hours	CFH	ft3	CFH
12/28/96-03/03/97	2.8E-15 ± 9.0%	1563.8	2.0	187102	79227
03/03/97-06/02/97	4.3E-15 ± 17%	2180.7	2.0	259960	51786
06/02/97-09/02/97	2.4E-15 ± 8.9%	2208.5	2.0	263512	45391
09/02/97-01/05/98	1.6E-15 ± 16%	2997.5	2.0	359701	47817

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

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2.4.2 B-Plant

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:20

291-B-1: 221-B BLDG & CANYON (B-PLANT MAIN STK) (B691, X691)

01/01/97 through 12/31/97

Total System Flow: 6.1E+11 Liters = 2.2E+10 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.78

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	3.9E-05	4.9E-14	1.2E-13
Cs-134	ND	<0.0E+00	n/a
Cs-137	7.9E-04	1.0E-12	2.3E-12
Pu-238	2.6E-08	3.3E-17	8.3E-17
Pu239/40	2.9E-06	3.7E-15	6.0E-15
Am-241	5.7E-07	7.3E-16	2.5E-15
Total α	1.7E-06	2.1E-15	1.3E-14
Total β	5.1E-04	6.6E-13	7.4E-12

04/21/98 12:45

291-B-1: 221-B BLDG & CANYON (B-PLANT MAIN STK) (B691)

01/01/97 to 12/31/97

Page 1

Warning Levels:		2.0E-13	9.0E-11	Collect	Sample	Sample	Stack
On/Off Dates		Total α $\mu\text{Ci}/\text{ml}$	Total β $\mu\text{Ci}/\text{ml}$	Time Hours	FlowRate CFH	Volume ft^3	FlowRate CFH
12/27/96-01/10/97	6.6E-15 $\pm$ 214	5.7E-13 $\pm$ 1.9%	335.0	1.4	29090	41000	
01/10/97-01/24/97	3.7E-16 $\pm$ 1404	2.2E-14 $\pm$ 9.7%	336.4	1.5	31255	41000	
01/24/97-02/07/97	1.6E-15 $\pm$ 394	3.0E-13 $\pm$ 2.5%	335.6	1.7	34365	41000	
02/07/97-02/21/97	7.3E-16 $\pm$ 784	4.6E-13 $\pm$ 2.0%	335.9	1.7	33913	41000	
02/21/97-03/07/97	8.8E-16 $\pm$ 714	4.2E-13 $\pm$ 2.1%	336.2	1.7	33749	41000	
03/07/97-03/21/97	1.5E-15 $\pm$ 412	2.1E-13 $\pm$ 2.9%	336.0	1.7	33592	41000	
03/21/97-04/03/97	3.5E-15 $\pm$ 294	4.9E-13 $\pm$ 2.1%	311.8	1.6	29567	41000	
04/03/97-04/18/97	5.0E-16 $\pm$ 1107	1.6E-13 $\pm$ 3.5%	354.6	1.4	30459	41000	
04/18/97-05/02/97	1.4E-15 $\pm$ 604	1.9E-13 $\pm$ 3.4%	337.8	1.4	27651	41000	
05/02/97-05/16/97	3.8E-16 $\pm$ 1404	1.7E-13 $\pm$ 3.7%	331.1	1.4	28376	41000	
05/16/97-05/30/97	5.7E-16 $\pm$ 1104	1.8E-13 $\pm$ 3.5%	336.0	1.4	28614	41000	
05/30/97-06/13/97	3.6E-15 $\pm$ 294	3.7E-12 $\pm$ 0.8%	334.4	1.4	28246	41000	
06/13/97-06/27/97	1.3E-14 $\pm$ 174	7.4E-12 $\pm$ 0.6%	335.9	1.3	27053	41000	
06/27/97-07/11/97	3.7E-15 $\pm$ 314	6.7E-13 $\pm$ 1.9%	335.4	1.3	26795	41000	
07/11/97-07/25/97	6.2E-16 $\pm$ 1104	2.8E-13 $\pm$ 2.9%	335.7	1.3	27072	41000	
07/25/97-08/08/97	1.2E-15 $\pm$ 654	2.2E-13 $\pm$ 3.2%	336.3	1.4	27319	41000	
08/08/97-08/22/97	7.7E-16 $\pm$ 984	1.8E-13 $\pm$ 3.5%	337.0	1.4	27530	41000	
08/22/97-09/05/97	6.0E-16 $\pm$ 1204	2.5E-13 $\pm$ 3.0%	335.4	1.3	26911	41000	
09/05/97-09/19/97	8.9E-16 $\pm$ 704	3.0E-13 $\pm$ 2.7%	335.6	1.4	27642	41000	
09/19/97-10/03/97	1.1E-15 $\pm$ 714	2.3E-13 $\pm$ 3.1%	336.5	1.3	27135	41000	
10/03/97-10/17/97	5.1E-16 $\pm$ 1104	3.4E-13 $\pm$ 2.5%	336.6	1.5	29930	41000	
10/17/97-10/31/97	8.3E-16 $\pm$ 864	1.2E-13 $\pm$ 4.1%	334.9	1.5	30856	41000	
10/31/97-11/14/97	1.3E-14 $\pm$ 164	3.4E-14 $\pm$ 7.7%	336.8	1.5	30756	41000	
11/14/97-11/28/97	6.5E-16 $\pm$ 924	8.1E-14 $\pm$ 5.1%	336.0	1.5	30638	41000	
11/28/97-12/12/97	1.1E-15 $\pm$ 664	2.3E-13 $\pm$ 3.0%	337.0	1.5	30578	41000	
12/12/97-12/26/97	1.2E-15 $\pm$ 614	1.2E-13 $\pm$ 4.1%	335.0	1.5	30713	41000	

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

291-B-1: 221-B BLDG & CANYON (B-PLANT MAIN STK) (X691)

01/01/97 to 12/31/97

Page 1

Warning Levels:	9.0E-12 Sr-90 μCi/ml	2.0E-10 Cs-134 μCi/ml	4.0E-10 Cs-137 μCi/ml	3.0E-14 Pu-238 μCi/ml	2.0E-14 Pu239/40 μCi/ml	2.0E-14 Am-241 μCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
On/Off Dates	μCi/ml	μCi/ml	μCi/ml	μCi/ml	μCi/ml	μCi/ml	Hours	CFH	ft3	CFH
12/27/96-03/21/97	2.3E-14 ± 14%	-1.5E-17 ± 710%	6.1E-13 ± 14%	8.3E-17 ± 30%	4.0E-15 ± 7.0%	2.5E-15 ± 17%	2015.1	1.6	195960	41000
03/21/97-06/27/97	1.2E-13 ± 11%	? 6.2E-17 ± 100%	2.3E-12 ± 14%	9.5E-17 ± 47%	6.0E-15 ± 16%	3.2E-16 ± 22%	2342.3	1.4	199971	41000
06/27/97-09/19/97	3.7E-14 ± 11%	-1.5E-17 ± 890%	7.2E-13 ± 14%	? 1.6E-17 ± 150%	3.7E-15 ± 16%	2.4E-16 ± 28%	2015.6	1.4	163268	41000
09/19/97-12/26/97	1.3E-14 ± 12%	-2.5E-17 ± 370%	3.4E-13 ± 14%	? 1.8E-17 ± 87%	1.4E-15 ± 17%	1.6E-16 ± 26%	2353.4	1.5	210631	41000

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:20

296-B-5: 221-BB BUILDING EXHAUST (B686)

01/01/97 through 12/31/97

Total System Flow: $1.0\text{E}+10$ Liters = $3.6\text{E}+08$ Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	9.9E-09	7.1E-16	9.6E-16
Total β	4.9E-08	3.5E-15	4.1E-15

04/21/98 12:45

Warning Levels:

2.0E-14
1000

9.0E-12
1000

01/01/97 to 12/31/97

296-B-5: 221-B8 BUILDING EXHAUST (B686)

01/01/97 to 12/31/97

Page 1

On/Off Dates	Collect Hours	Sample FlowRate CFM	Sample Volume ft ³	Stack FlowRate CFM
12/27/96-01/10/97	335.0	1.5	30638	1695
01/10/97-02/07/97	335.0	1.5	30638	1695
02/07/97-02/21/97	335.0	1.5	30460	1695
02/21/97-03/07/97	335.0	1.5	30454	1695
03/07/97-03/21/97	0.0	0.0	0	0
03/21/97-12/31/97	0.0	0.0	0	0

SYN90L KEY: * Concentration exceeds Warning Level (factored DCB). ? Questionable Result - No Peak Detected. ~ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:20

296-B-13: 221-BF BCP TANKS & CONDENSATE (B690)

01/01/97 through 12/31/97

Total System Flow: 1.2E+09 Liters = 4.4E+07 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.62

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	2.8E-09	1.4E-15	2.0E-15
Total β	7.2E-09	3.6E-15	8.8E-15

04/21/98 12:45

296-B-13: 221-BF BCP TANKS & CONDENSATE (B690)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates	Total α	Total β	Time	FlowRate	Volume	FlowRate
	μCi/ml	μCi/ml	Hours	CFM	ft3	CFM
12/27/96-01/10/97	9.6E-16 ± 70%	2.9E-15 ± 28%	335.5	1.5	30857	716
01/10/97-01/24/97	2.0E-15 ± 38%	3.5E-15 ± 25%	336.1	1.5	30766	716
01/24/97-02/07/97	1.6E-15 ± 41%	2.3E-15 ± 32%	337.0	1.6	31370	716
02/07/97-02/12/97	1.9E-16 ± 540%	8.8E-15 ± 26%	121.7	1.6	11339	716
02/12/97-12/31/97			0.0	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

2.4.3 WESF

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:21

296-B-10: 225-B BUILDING & CELLS (B748, X748)

01/01/97 through 12/31/97

Total System Flow: 3.1E+11 Liters = 1.1E+10 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.78

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	1.8E-04	4.5E-13	9.2E-13
Cs-134	ND	<0.0E+00	n/a
Cs-137	6.1E-05	1.5E-13	2.6E-13
Total α	1.3E-06	3.2E-15	9.4E-14
Total β	2.6E-04	6.5E-13	2.2E-11

51

Warning Levels:		On/Off Dates		* 2.00 - 3.00		* 3.00 - 4.00		* 4.00 - 5.00		* 5.00 - 6.00		* 6.00 - 7.00		* 7.00 - 8.00		* 8.00 - 9.00		* 9.00 - 10.00		* 10.00 - 11.00		* 11.00 - 12.00		* 12.00 - 13.00		* 13.00 - 14.00		* 14.00 - 15.00		* 15.00 - 16.00		* 16.00 - 17.00		* 17.00 - 18.00		* 18.00 - 19.00		* 19.00 - 20.00		* 20.00 - 21.00		* 21.00 - 22.00		* 22.00 - 23.00		* 23.00 - 24.00		* 24.00 - 25.00		* 25.00 - 26.00		* 26.00 - 27.00		* 27.00 - 28.00		* 28.00 - 29.00		* 29.00 - 30.00		* 30.00 - 31.00		* 31.00 - 32.00		* 32.00 - 33.00		* 33.00 - 34.00		* 34.00 - 35.00		* 35.00 - 36.00		* 36.00 - 37.00		* 37.00 - 38.00		* 38.00 - 39.00		* 39.00 - 40.00		* 40.00 - 41.00		* 41.00 - 42.00		* 42.00 - 43.00		* 43.00 - 44.00		* 44.00 - 45.00		* 45.00 - 46.00		* 46.00 - 47.00		* 47.00 - 48.00		* 48.00 - 49.00		* 49.00 - 50.00		* 50.00 - 51.00		* 51.00 - 52.00		* 52.00 - 53.00		* 53.00 - 54.00		* 54.00 - 55.00		* 55.00 - 56.00		* 56.00 - 57.00		* 57.00 - 58.00		* 58.00 - 59.00		* 59.00 - 60.00		* 60.00 - 61.00		* 61.00 - 62.00		* 62.00 - 63.00		* 63.00 - 64.00		* 64.00 - 65.00		* 65.00 - 66.00		* 66.00 - 67.00		* 67.00 - 68.00		* 68.00 - 69.00		* 69.00 - 70.00		* 70.00 - 71.00		* 71.00 - 72.00		* 72.00 - 73.00		* 73.00 - 74.00		* 74.00 - 75.00		* 75.00 - 76.00		* 76.00 - 77.00		* 77.00 - 78.00		* 78.00 - 79.00		* 79.00 - 80.00		* 80.00 - 81.00		* 81.00 - 82.00		* 82.00 - 83.00		* 83.00 - 84.00		* 84.00 - 85.00		* 85.00 - 86.00		* 86.00 - 87.00		* 87.00 - 88.00		* 88.00 - 89.00		* 89.00 - 90.00		* 90.00 - 91.00		* 91.00 - 92.00		* 92.00 - 93.00		* 93.00 - 94.00		* 94.00 - 95.00		* 95.00 - 96.00		* 96.00 - 97.00		* 97.00 - 98.00		* 98.00 - 99.00		* 99.00 - 100.00		* 100.00 - 101.00		* 101.00 - 102.00		* 102.00 - 103.00		* 103.00 - 104.00		* 104.00 - 105.00		* 105.00 - 106.00		* 106.00 - 107.00		* 107.00 - 108.00		* 108.00 - 109.00		* 109.00 - 110.00		* 110.00 - 111.00		* 111.00 - 112.00		* 112.00 - 113.00		* 113.00 - 114.00		* 114.00 - 115.00		* 115.00 - 116.00		* 116.00 - 117.00		* 117.00 - 118.00		* 118.00 - 119.00		* 119.00 - 120.00		* 120.00 - 121.00		* 121.00 - 122.00		* 122.00 - 123.00		* 123.00 - 124.00		* 124.00 - 125.00		* 125.00 - 126.00		* 126.00 - 127.00		* 127.00 - 128.00		* 128.00 - 129.00		* 129.00 - 130.00		* 130.00 - 131.00		* 131.00 - 132.00		* 132.00 - 133.00		* 133.00 - 134.00		* 134.00 - 135.00		* 135.00 - 136.00		* 136.00 - 137.00		* 137.00 - 138.00		* 138.00 - 139.00		* 139.00 - 140.00		* 140.00 - 141.00		* 141.00 - 142.00		* 142.00 - 143.00		* 143.00 - 144.00		* 144.00 - 145.00		* 145.00 - 146.00		* 146.00 - 147.00		* 147.00 - 148.00		* 148.00 - 149.00		* 149.00 - 150.00		* 150.00 - 151.00		* 151.00 - 152.00		* 152.00 - 153.00		* 153.00 - 154.00		* 154.00 - 155.00		* 155.00 - 156.00		* 156.00 - 157.00		* 157.00 - 158.00		* 158.00 - 159.00		* 159.00 - 160.00		* 160.00 - 161.00		* 161.00 - 162.00		* 162.00 - 163.00		* 163.00 - 164.00		* 164.00 - 165.00		* 165.00 - 166.00		* 166.00 - 167.00		* 167.00 - 168.00		* 168.00 - 169.00		* 169.00 - 170.00		* 170.00 - 171.00		* 171.00 - 172.00		* 172.00 - 173.0	
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04/21/98 12:45

296-B-10: 225-B BUILDING & CELLS (X748)

01/01/97 to 12/31/97

Page 1

Warning Levels:	9.0E-12 Sr-90 μCi/ml	2.0E-10 Cs-134 μCi/ml	4.0E-10 Cs-137 μCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume F3	Stack FlowRate CFH
On/Off Dates							
12/27/96-03/28/97	9.2E-13 ± 12%	-1.2E-16 ± 120%	2.6E-13 ± 15%	2194.2	1.6	206253	21150
03/28/97-06/27/97	1.6E-13 ± 13%	-1.7E-17 ± 660%	8.9E-14 ± 14%	2015.5	1.4	172360	21150
06/27/97-09/19/97	5.2E-13 ± 12%	? 4.1E-17 ± 300%	1.7E-13 ± 14%	2015.7	1.5	175581	21150
09/19/97-12/26/97	2.7E-13 ± 14%	? 3.8E-17 ± 360%	9.7E-14 ± 15%	2353.1	1.4	195059	21150

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

2.4.4 East Tank Farms

ENVIRONMENTAL RELEASE SUMMARY REPORT

06/29/98

10:27

296-A-17 & 296-P-26: 241-AZ, AZ TANK EXHAUSTERS (E059, E039)

01/01/97 through 12/31/97

Total System Flow: 4.8E+10 Liters = 1.7E+09 Cubic Ft

Radionuclide	Half-life	Release, Ci
Sr-90	29.12 Years	1.6E-06
Ru-106	368 Days	ND
Sn-113	115 Days	ND
Sb-125	2.8 Years	ND
I-129	1.57E+7 Years	2.1E-04
Cs-134	2.1 Years	ND
Cs-137	30 Years	2.0E-05
Pu-238	87.8 Years	8.8E-10
Pu239/40	24,131 Years*	6.9E-09
Am-241	432 Years	7.5E-09
Total α	n/a	2.9E-08
Total β	n/a	1.7E-05

* The half-life shown for Total Uranium is the half-life of ^{238}U . The half-life shown for mixed $^{239/240}\text{Pu}$ is the half-life of ^{239}Pu .

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:21

296-A-17: 241-AZ, AZ TANKS (E026, E059, X059)

01/01/97 through 12/31/97

Total System Flow: 4.5E+10 Liters = 1.6E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.71
 Halogens: 0.87

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	1.6E-06	2.5E-14	5.5E-14
Ru-106	ND	<0.0E+00	n/a
Sn-113	ND	<0.0E+00	n/a
Sb-125	ND	<0.0E+00	n/a
I-129	2.1E-04	4.0E-12	9.3E-12
Cs-134	ND	<0.0E+00	n/a
Cs-137	2.0E-05	3.3E-13	6.6E-13
Pu-238	8.8E-10	1.4E-17	4.1E-17
Pu239/40	6.0E-09	9.6E-17	1.5E-16
Am-241	6.3E-09	1.0E-16	1.2E-16
Total α	2.9E-08	4.7E-16	4.1E-15
Total β	1.7E-05	2.6E-13	2.7E-12

04/21/98 12:45

Warning Levels:	2.0E-13 Total α $\mu\text{Ci/ml}$	9.0E-11 Total β $\mu\text{Ci/ml}$	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft ³	Stack FlowRate CFM
On/Off Dates						
12/27/96-01/07/97	1.1E-15 $\pm$ 82x	2.0E-13 $\pm$ 3.5x	265.0	1.5	24477	2763
01/07/97-01/21/97	5.1E-16 $\pm$ 110x	2.0E-13 $\pm$ 3.2x	336.0	1.6	31660	2981
01/21/97-02/04/97	4.2E-16 $\pm$ 120x	1.8E-13 $\pm$ 3.0x	340.6	1.8	36285	3112
02/04/97-02/18/97	6.4E-17 $\pm$ 540x	2.3E-14 $\pm$ 9.0x	335.3	1.7	33276	3099
02/18/97-03/04/97	4.3E-16 $\pm$ 120x	5.8E-14 $\pm$ 5.4x	335.6	1.8	35965	3043
03/04/97-03/18/97	4.1E-15 $\pm$ 25x	2.0E-13 $\pm$ 3.0x	336.5	1.7	33649	3082
03/18/97-04/01/97	5.6E-16 $\pm$ 91x	9.0E-14 $\pm$ 4.4x	335.8	1.7	34335	3152
04/01/97-04/15/97	1.5E-15 $\pm$ 40x	1.2E-13 $\pm$ 3.9x	335.9	1.7	35217	3152
04/15/97-04/29/97	5.2E-16 $\pm$ 100x	1.8E-13 $\pm$ 3.3x	332.1	1.6	32533	2875
04/29/97-05/13/97	4.0E-16 $\pm$ 130x	6.9E-14 $\pm$ 5.5x	336.0	1.5	29377	3036
05/13/97-05/27/97	1.2E-15 $\pm$ 69x	4.7E-13 $\pm$ 2.1x	340.1	1.5	31099	2936
05/27/97-06/10/97	3.3E-16 $\pm$ 130x	4.5E-14 $\pm$ 6.2x	335.0	1.8	35700	3152
06/10/97-06/24/97	-4.6E-17 $\pm$ 490x	1.7E-13 $\pm$ 3.2x	337.3	1.8	36698	3152
06/24/97-07/08/97	8.1E-17 $\pm$ 400x	1.4E-13 $\pm$ 3.6x	330.9	1.8	34801	3152
07/08/97-07/22/97	1.2E-15 $\pm$ 65x	2.7E-12 $\pm$ 0.9x	337.0	1.5	29354	2599
07/22/97-08/05/97	1.9E-16 $\pm$ 100x	5.2E-13 $\pm$ 1.8x	335.5	1.9	37964	3152
08/05/97-08/19/97	2.4E-16 $\pm$ 170x	1.0E-13 $\pm$ 4.3x	334.7	1.7	33214	3025
08/19/97-09/02/97	1.8E-15 $\pm$ 77x	1.2E-12 $\pm$ 1.9x	336.0	0.7	14495	1243
09/02/97-09/16/97	1.6E-16 $\pm$ 230x	8.7E-14 $\pm$ 4.1x	336.0	2.1	42793	3152
09/16/97-09/30/97	3.7E-16 $\pm$ 130x	1.9E-13 $\pm$ 3.1x	336.5	1.7	33886	3152
09/30/97-10/14/97	6.3E-16 $\pm$ 88x	1.6E-13 $\pm$ 3.4x	339.0	1.6	33511	3152
10/14/97-10/28/97	7.4E-16 $\pm$ 81x	3.4E-13 $\pm$ 2.4x	331.3	1.6	31564	3152
10/28/97-11/11/97	8.4E-16 $\pm$ 73x	2.0E-13 $\pm$ 3.1x	338.9	1.6	32390	3152
11/11/97-11/25/97	3.7E-16 $\pm$ 130x	1.1E-13 $\pm$ 4.1x	343.0	1.6	33470	3152
11/25/97-12/09/97	2.9E-16 $\pm$ 180x	8.4E-14 $\pm$ 5.4x	328.0	1.3	26199	3152
12/09/97-12/22/97	3.7E-16 $\pm$ 130x	8.0E-14 $\pm$ 5.0x	318.0	1.7	31772	3152
12/22/97-12/31/97			0.0	0.0	0	3152

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

296-A-17: 241-AV,AZ TANKS (E026)

01/01/97 to 12/31/97

Page 1

Warning Levels:	3.0E-10 Ru-106 μCi/ml	1.0E-08 Sn-113 μCi/ml	1.0E-08 Sb-125 μCi/ml	7.0E-10 I-129 μCi/ml	4.0E-09 Cs-137 μCi/ml	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft3	Stack FlowRate CFM
On/Off Dates									
01/01/97-02/11/97						0.0	0.0	0	3003
02/11/97-02/18/97 ? 1.5E-14 ± 270%	-4.4E-15 ± 120%	-6.2E-15 ± 180%	? 7.7E-14 ± 490%	-4.1E-15 ± 110%	170.5	1.7	17320	3152	
02/18/97-05/06/97					0.0	0.0	0	3069	
05/06/97-05/13/97 ? 4.1E-15 ± 999%	-2.1E-15 ± 370%	? 6.7E-15 ± 260%	9.3E-12 ± 29%	8.9E-14 ± 30%	164.5	1.1	10391	2915	
05/13/97-09/02/97					0.0	0.0	0	2800	
09/02/97-09/09/97 ? 4.1E-15 ± 680%	? 9.6E-16 ± 350%	? 5.4E-15 ± 150%	? 3.4E-13 ± 84%	? 3.3E-15 ± 96%	167.6	2.3	22754	3152	
09/09/97-12/02/97					0.0	0.0	0	3152	
12/02/97-12/09/97 ? 3.8E-14 ± 150%	-3.3E-16 ± 999%	-5.2E-15 ± 280%	7.4E-12 ± 22%	? 5.7E-14 ± 36%	168.0	1.2	12203	3152	
12/09/97-12/31/97					0.0	0.0	0	3152	

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

296-A-17: 241-AZ TANKS (X059)

01/01/97 to 12/31/97

Page 1

Warning Levels:	9.0E-12 Sr-90 μCi/ml	3.0E-11 Ru-106 μCi/ml	1.0E-09 Sn-113 μCi/ml	1.0E-09 Sb-125 μCi/ml	2.0E-10 Cs-134 μCi/ml	4.0E-10 Cs-137 μCi/ml	3.0E-14 Pu-238 μCi/ml	2.0E-14 Pu239/40 μCi/ml	2.0E-14 Am-241 μCi/ml
On/Off Dates									
12/27/96-03/18/97	1.8E-14 ± 14%	-3.3E-16 ± 450%	? 8.6E-17 ± 280%	? 7.7E-17 ± 810%	? 7.1E-17 ± 170%	1.9E-13 ± 18%	1.8E-17 ± 70%	1.4E-16 ± 30%	7.4E-17 ± 40%
03/18/97-06/24/97	1.3E-14 ± 12%	-4.5E-16 ± 270%	-1.7E-16 ± 120%	? 7.5E-17 ± 660%	? 3.2E-18 ± 999%	1.5E-13 ± 18%	? 2.3E-17 ± 92%	5.4E-17 ± 38%	8.2E-17 ± 34%
06/24/97-09/30/97	5.5E-14 ± 12%	-8.3E-16 ± 250%	-5.7E-17 ± 680%	? 5.2E-18 ± 190%	? 1.4E-16 ± 91%	6.6E-13 ± 18%	4.1E-17 ± 54%	1.5E-16 ± 27%	1.2E-16 ± 33%
09/30/97-12/22/97	1.5E-14 ± 15%	? 7.6E-16 ± 200%	? 6.8E-17 ± 400%	? 2.4E-16 ± 270%	? 2.6E-17 ± 400%	2.2E-13 ± 14%	-6.9E-18 ± 180%	5.2E-17 ± 44%	1.2E-16 ± 30%
12/22/97-12/31/97									

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

296-A-17: 241-AZ TANKS (X059)

01/01/97 to 12/31/97

Page 2

Warning Levels:	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft3	Stack FlowRate CFM
On/Off Dates				
12/27/96-03/18/97	1948.9	1.7	195309	3056
03/18/97-06/24/97	2352.5	1.7	233955	3050
06/24/97-09/30/97	2347.4	1.6	226504	2781
09/30/97-12/22/97	1998.6	1.6	188902	3152
12/22/97-12/31/97	0.0	0.0	0	3152

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

HNF-2665 Rev. 0

ENVIRONMENTAL RELEASE SUMMARY REPORT

06/29/98

10:27

296-P-26: 241-AZ EXHAUSTER (Backup to 296-A-17) (E039, E040)

01/01/97 through 12/31/97

Total System Flow: 3.5E+09 Liters = 1.2E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.84

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	ND	<0.0E+00	n/a
Ru-106	ND	<0.0E+00	n/a
Sn-113	ND	<0.0E+00	n/a
Sb-125	ND	<0.0E+00	n/a
Cs-134	ND	<0.0E+00	n/a
Cs-137	9.2E-09	2.2E-15	2.2E-15
Pu-238	ND	<0.0E+00	n/a
Pu239/40	9.2E-10	2.2E-16	2.2E-16
Am-241	1.2E-09	2.9E-16	2.9E-16
Total α	ND	<0.0E+00	n/a
Total β	7.7E-08	1.8E-14	4.8E-13

04/21/98 12:45

296-P-26: 241-AV,AZ EXHAUSTER (Backup to 296-A-17) (E039)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α $\mu\text{Ci}/\text{ml}$	9.0E-12 Total B $\mu\text{Ci}/\text{ml}$	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft ³	Stack FlowRate CFM
On/Off Dates						
12/27/96-01/07/97	-7.9E-16 $\pm$ 330%	2.9E-14 $\pm$ 26%	19.0	3.1	3492	623
01/07/97-02/04/97	1.0E-14 $\pm$ 100%	3.0E-14 $\pm$ 35%	24.2	1.4	2025	168
02/04/97-02/18/97	* 3.0E-14 $\pm$ 110%	4.8E-13 $\pm$ 16%	6.7	1.5	512	84
02/18/97-03/04/97	6.8E-16 $\pm$ 999%	2.2E-15 $\pm$ 740%	335.4	0.0	779	172
03/04/97-03/18/97	5.7E-15 $\pm$ 390%	1.0E-13 $\pm$ 38%	336.7	0.0	512	113
03/18/97-04/23/97	-2.7E-16 $\pm$ 800%	4.3E-15 $\pm$ 100%	29.3	2.1	3771	148
04/23/97-05/13/97	2.3E-15 $\pm$ 180%	1.0E-14 $\pm$ 50%	26.0	2.0	3196	189
05/13/97-05/27/97	5.0E-16 $\pm$ 920%	1.6E-14 $\pm$ 42%	23.1	2.0	2794	344
05/27/97-07/22/97	4.3E-16 $\pm$ 370%	9.8E-15 $\pm$ 31%	59.2	2.1	7495	223
07/22/97-08/19/97	-5.3E-16 $\pm$ 880%	7.9E-14 $\pm$ 22%	13.3	2.2	1795	101
08/19/97-09/02/97	-4.4E-17 $\pm$ 880%	3.4E-15 $\pm$ 32%	203.8	1.7	20727	3063
09/02/97-12/31/97			0.0	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

296-P-26: 241-AZ AZ EXHAUSTER (Backup to 296-A-17) (X039)

01/01/97 to 12/31/97

Page 1

Warning Levels:	9.0E-12 Sr-90 μCi/ml	3.0E-11 Ru-106 μCi/ml	1.0E-09 Sn-113 μCi/ml	1.0E-09 Sb-125 μCi/ml	2.0E-10 Cs-134 μCi/ml	4.0E-10 Cs-137 μCi/ml	3.0E-14 Pu-239 μCi/ml	2.0E-14 Pu-239/40 μCi/ml	2.0E-14 Am-241 μCi/ml
On/Off Dates									
12/27/96-09/02/97	-1.1E-15 ± 160%	-1.7E-15 ± 250%	-5.0E-16 ± 110%	-1.2E-16 ± 840%	? 2.8E-16 ± 180%	2.2E-15 ± 38%	? 6.9E-17 ± 210%	2.2E-16 ± 53%	2.9E-16 ± 54%
09/02/97-12/31/97									

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

296-P-26: 241-AZ AZ EXHAUSTER (Backup to 296-A-17) (X039)

01/01/97 to 12/31/97

Page 2

Warning Levels:	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft3	Stack FlowRate CFM
On/Off Dates				
12/27/96-09/02/97	1075.7	0.7	46951	351
09/02/97-12/31/97	0.0	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:21

296-A-18: 101-AY ANNULUS (E060)

01/01/97 through 12/31/97

Total System Flow: 9.6E+09 Liters = 3.4E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	1.2E-08	8.9E-16	1.1E-15
Total β	3.7E-08	2.8E-15	5.9E-15

04/21/98 12:45 296-A-18: 101-AY ANNULUS (E660) 01/01/97 to 12/31/97 Page 1

Warning Levels:	2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates	μCi/l	μCi/ml	Hours	Flowrate	Volume	Flowrate
				CFM	ft ³	CFM
01/01/97-05/29/97	8.2E-16 ± 81%	6.2E-16 ± 96%	293.0	0.0	28134	1506
05/29/97-06/24/97	1.6E-16 ± 210%	5.9E-15 ± 17%	337.0	1.8	35785	1501
06/24/97-07/08/97	3.5E-16 ± 130%	5.6E-16 ± 96%	339.9	1.7	32887	1456
07/08/97-12/31/97	1.1E-15 ± 61%	2.9E-15 ± 27%	352.0	0.0	31459	1623
07/22/97-12/31/97			0.0	0.0	0	1023

SYMBOL KEY: * Concentration exceeds Warning Level (factored DC6). ? Questionable Result - No Peak Detected.

** Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:22

296-A-19: 102-AY ANNULUS (E061)

01/01/97 through 12/31/97

Total System Flow: 1.6E+10 Liters = 5.7E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	1.0E-08	4.6E-16	8.2E-16
Total β	2.7E-08	1.2E-15	1.4E-15

04/21/98 12:45		296-A-19: 102-AY ANNULUS (E661)		01/01/97 to 12/31/97		Page 1	
Warning Levels:		9.0E-12					
On/Off Dates:		µCi/ml					
01/01/97-02/18/97		-9.4E-17 ± 210X		Collect		Sample	
03/04/97-03/18/97		3.0E-16 ± 130X		Hours		FlowRate	
03/18/97-09/16/97		8.2E-16 ± 40X		µCi/ml		CPH	
09/16/97-10/14/97		1.4E-15 ± 28X		Sample		Stack	
10/14/97-12/31/97				Volume		FlowRate	
				mL		CPH	
				0		0	
				0		47112	
				0		39151	
				0		0	
				0		1419	
				0		463	
				0		6415	
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ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:22

296-A-25: 244-A LIFT STATION CATCH TANK (E080, X080)

01/01/97 through 12/31/97

Total System Flow: 1.1E+09 Liters = 3.9E+07 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.81

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	ND	<0.0E+00	n/a
Cs-134	ND	<0.0E+00	n/a
Cs-137	6.4E-07	4.7E-13	5.6E-12
Pu-238	ND	<0.0E+00	n/a
Pu239/40	5.7E-11	4.2E-17	4.8E-16
Am-241	1.4E-10	1.0E-16	6.4E-16
Total α	8.8E-10	6.5E-16	6.8E-15
Total β	6.3E-07	4.6E-13	6.6E-12

04/21/98 12:45

296-A-25: 244-A LIFT STATION CATCH TANK (E080)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates	Total α μCi/ml	Total β μCi/ml	Time Hours	FlowRate CFM	Volume ft3	FlowRate CFM
01/01/97-02/11/97				0.0	0	0
02/11/97-02/18/97	-1.3E-16 ± 360%	1.0E-15 ± 95%	168.8	1.7	17179	138
02/18/97-03/04/97	6.3E-16 ± 88%	9.7E-14 ± 4.0%	335.6	2.0	39920	162
03/04/97-03/18/97	2.0E-15 ± 34%	1.7E-13 ± 3.2%	314.0	2.0	37197	150
03/18/97-04/01/97	3.7E-15 ± 130%	2.3E-12 ± 3.0%	25.6	1.9	2970	12
04/01/97-04/15/97	1.8E-16 ± 220%	9.2E-14 ± 4.4%	334.4	1.7	34831	163
04/15/97-04/29/97	-2.5E-17 ± 800%	4.4E-14 ± 5.8%	336.0	2.1	41593	163
04/29/97-05/13/97	2.8E-16 ± 130%	1.9E-13 ± 2.8%	338.0	2.0	40991	163
05/13/97-05/27/97	6.5E-16 ± 85%	1.1E-13 ± 3.7%	329.6	2.0	40394	163
05/27/97-06/10/97	1.9E-16 ± 190%	2.6E-14 ± 7.8%	326.0	2.1	40212	163
06/10/97-06/24/97	3.0E-16 ± 130%	4.6E-14 ± 5.9%	313.4	2.0	38272	150
06/24/97-07/08/97	7.0E-17 ± 400%	4.3E-14 ± 6.1%	332.6	2.0	39822	163
07/08/97-07/22/97	7.7E-17 ± 370%	3.3E-14 ± 6.8%	339.7	2.0	41369	163
07/22/97-08/05/97	3.6E-16 ± 130%	1.6E-13 ± 3.4%	266.3	2.0	32731	131
08/05/97-12/30/97	6.8E-15 ± 22%	6.6E-12 ± 0.6%	3527.7	0.1	26525	10
12/30/97-12/31/97			0.0	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

296-A-25: 244-A LIFT STATION CATCH TANK (X080)

01/01/97 to 12/31/97

Page 1

Warning Levels:	9.0E-12 Sr-90 μCi/ml	2.0E-10 Cs-134 μCi/ml	4.0E-10 Cs-137 μCi/ml	3.0E-14 Pu-238 μCi/ml	2.0E-14 Pu-239/40 μCi/ml	2.0E-14 Am-241 μCi/ml	Collect Time Hours	Sample FlowRate CFM	Sample Volume lit	Stack FlowRate CFM
On/Off Dates										
12/27/96-03/18/97	? 5.6E-16 ± 80%	? 2.0E-16 ± 120%	3.4E-13 ± 15%	-1.2E-17 ± 200%	2.8E-17 ± 80%	4.1E-17 ± 80%	1921.9	0.8	94414	70
03/18/97-05/24/97	-1.9E-16 ± 100%	? 1.3E-17 ± 720%	1.4E-13 ± 15%	? 9.9E-18 ± 210%	1.9E-17 ± 64%	4.1E-17 ± 40%	2003.3	2.0	239258	139
05/24/97-08/05/97	-6.2E-17 ± 540%	? 7.1E-17 ± 290%	9.5E-14 ± 15%	? 1.2E-17 ± 160%	8.7E-18 ± 120%	1.5E-16 ± 44%	938.7	2.0	113920	152
08/05/97-12/30/97	? 5.1E-15 ± 80%	? 3.7E-16 ± 250%	5.6E-12 ± 15%	? 1.7E-17 ± 100%	4.8E-16 ± 41%	6.4E-16 ± 36%	3527.7	0.1	26524	10
12/30/97-12/31/97							0.0	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:22

296-A-26: 204-AR WASTE UNLOADING FACILITY (E297)

01/01/97 through 12/31/97

Total System Flow: 2.5E+10 Liters = 8.7E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	8.5E-10	2.5E-17	1.4E-15
Total β	4.5E-09	1.3E-16	3.2E-15

04/21/98 12:45

296-A-26: 204-AR WASTE UNLOADING FACILITY (E297)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α	9.0E-12 Total β	Collect Time	Sample FlowRate	Sample Volume	Stack FlowRate
On/Off Dates	μCi/ml	μCi/ml	Hours	CFM	ft3	CFM
12/27/96-01/07/97	1.4E-15 ± 67%	3.2E-15 ± 29%	268.0	1.6	25495	1663
01/07/97-01/21/97	2.3E-16 ± 200%	5.0E-16 ± 100%	332.2	1.6	31336	1663
01/21/97-02/04/97	1.4E-16 ± 210%	1.5E-17 ± 999%	337.6	1.6	32818	1663
02/04/97-02/18/97	7.7E-17 ± 360%	1.3E-15 ± 44%	334.6	1.5	30226	1663
02/18/97-03/04/97	1.7E-17 ± 999%	6.6E-16 ± 67%	337.0	1.6	31476	1663
03/04/97-03/18/97	5.0E-17 ± 550%	3.2E-16 ± 150%	338.7	1.5	29620	1663
03/18/97-12/31/97			0.0	0.0	0	1663

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:22

296-A-27: ALL AW TANKS (E270, E933, X270)

01/01/97 through 12/31/97

Total System Flow: 1.5E+10 Liters = 5.3E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.52

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	3.2E-09	1.1E-16	1.2E-15
Total β	1.4E-07	5.0E-15	1.2E-14

04/21/98 12:45

296-A-27: ALL AH TANKS (E270)

01/01/97 to 12/31/97

Page 1

Warning Levels:		2.0E-13	9.0E-11	Collect	Sample	Sample	Stack
On/Off Dates		Total α $\mu\text{Ci}/\text{ml}$	Total β $\mu\text{Ci}/\text{ml}$	Time Hours	FlowRate CFM	Volume ft3	FlowRate CFM
12/27/96-01/07/97	-1.1E-16 $\pm$ 330X	3.4E-15 $\pm$ 28X	262.0	1.6	25476	1004	
01/07/97-01/21/97	8.8E-17 $\pm$ 440X	7.5E-15 $\pm$ 17X	339.0	1.5	30124	1004	
01/21/97-02/04/97	1.7E-16 $\pm$ 280X	6.3E-15 $\pm$ 18X	334.8	1.6	31683	1004	
02/04/97-02/18/97	-7.0E-17 $\pm$ 360X	5.2E-16 $\pm$ 95X	336.5	1.6	32834	1004	
02/18/97-03/04/97	1.6E-17 $\pm$ 999X	2.4E-15 $\pm$ 30X	334.0	1.6	32279	1004	
03/04/97-03/18/97	8.9E-17 $\pm$ 390X	3.6E-15 $\pm$ 24X	341.0	1.6	32760	1004	
03/18/97-04/01/97	-5.0E-17 $\pm$ 480X	2.6E-15 $\pm$ 29X	330.6	1.6	32118	1004	
04/01/97-04/15/97	3.4E-16 $\pm$ 150X	3.5E-15 $\pm$ 25X	339.4	1.5	31344	1004	
04/15/97-04/29/97	1.1E-16 $\pm$ 340X	4.1E-15 $\pm$ 23X	332.0	1.5	30543	1004	
04/29/97-05/13/97	-4.0E-17 $\pm$ 620X	2.6E-15 $\pm$ 29X	335.9	1.6	32690	1004	
05/13/97-05/27/97	3.6E-16 $\pm$ 150X	2.7E-15 $\pm$ 29X	340.7	1.6	31714	1004	
05/27/97-06/10/97	9.3E-17 $\pm$ 380X	0.9E-16 $\pm$ 54X	336.4	1.6	32680	1004	
06/10/97-06/24/97	8.4E-17 $\pm$ 420X	2.5E-15 $\pm$ 29X	331.0	1.6	32052	1004	
06/24/97-07/08/97	8.7E-17 $\pm$ 400X	1.0E-14 $\pm$ 14X	335.6	1.6	32430	1004	
07/08/97-07/22/97	9.6E-17 $\pm$ 370X	6.5E-15 $\pm$ 17X	336.9	1.6	32967	1004	
07/22/97-08/05/97	3.6E-16 $\pm$ 130X	4.2E-15 $\pm$ 23X	336.0	1.6	32566	1004	
08/05/97-08/19/97	5.7E-16 $\pm$ 100X	5.8E-15 $\pm$ 20X	336.0	1.4	29213	1004	
08/19/97-09/02/97	1.0E-16 $\pm$ 330X	6.1E-15 $\pm$ 18X	335.7	1.6	33166	1004	
09/02/97-09/16/97	3.5E-16 $\pm$ 150X	8.8E-15 $\pm$ 15X	340.0	1.6	33464	1004	
09/16/97-09/30/97	2.4E-16 $\pm$ 170X	1.2E-14 $\pm$ 13X	336.5	1.7	33331	1004	
09/30/97-10/14/97	3.7E-16 $\pm$ 130X	5.2E-15 $\pm$ 20X	336.0	1.7	33285	1004	
10/14/97-10/28/97	4.6E-16 $\pm$ 110X	2.1E-15 $\pm$ 32X	332.9	1.6	32518	1004	
10/28/97-11/11/97	3.2E-16 $\pm$ 140X	7.6E-15 $\pm$ 16X	337.0	1.6	32750	1004	
11/11/97-11/25/97	1.0E-15 $\pm$ 64X	1.2E-14 $\pm$ 13X	336.5	1.7	33342	1004	
11/25/97-12/09/97	2.4E-16 $\pm$ 180X	2.8E-15 $\pm$ 28X	335.9	1.6	32223	1004	
12/09/97-12/22/97	1.2E-15 $\pm$ 44X	3.5E-15 $\pm$ 23X	315.0	2.0	37379	1004	
12/22/97-12/31/97			0.0	0.0	0	1004	

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

HNF-2665 Rev. 0

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:22

296-A-28: ALL AW ANNULI (E272)

01/01/97 through 12/31/97

Total System Flow: 7.8E+10 Liters = 2.8E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.47

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	ND	<0.0E+00	n/a
Total β	2.2E-06	1.3E-14	3.2E-13

04/21/98 12:45

296-A-28: ALL AM ANNULI (E272)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α $\mu\text{Ci}/\text{ml}$	9.0E-12 Total β $\mu\text{Ci}/\text{ml}$	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft ³	Stack FlowRate CFH
On/Off Dates						
12/27/96-01/07/97	4.9E-16 $\pm$ 140%	5.3E-15 $\pm$ 23%	262.2	1.6	24428	5250
01/07/97-01/21/97	8.5E-17 $\pm$ 440%	2.3E-15 $\pm$ 32%	340.8	1.5	31291	5250
01/21/97-02/04/97	1.8E-16 $\pm$ 280%	2.2E-15 $\pm$ 33%	333.0	1.5	30753	5250
02/04/97-02/18/97	2.2E-16 $\pm$ 210%	3.2E-13 $\pm$ 2.6%	336.6	1.5	29918	5250
02/18/97-03/04/97	5.2E-16 $\pm$ 120%	2.5E-15 $\pm$ 31%	334.4	1.5	29684	5106
03/04/97-03/18/97	2.3E-16 $\pm$ 190%	7.3E-16 $\pm$ 63%	341.6	1.5	31142	5250
03/18/97-12/31/97			0.0	0.0	0	5238

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:23

296-A-29: ALL AN TANKS (E901, X901)

01/01/97 through 12/31/97

Total System Flow: 1.1E+10 Liters = 3.9E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.53

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	9.1E-10	4.4E-17	6.7E-16
Total β	6.8E-07	3.3E-14	3.1E-13

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296-A-29: ALL AN TANKS (E901)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-13	9.0E-11	Collect	Sample	Sample	Stack
On/Off Dates	Total α $\mu\text{Ci/ml}$	Total β $\mu\text{Ci/ml}$	Time Hours	FlowRate CFH	Volume ft ³	FlowRate CFH
12/27/96-01/07/97	2.6E-16 $\pm$ 140X	1.8E-14 $\pm$ 8.8X	264.0	2.9	46016	735
01/07/97-01/21/97	3.5E-17 $\pm$ 460X	1.6E-14 $\pm$ 8.9X	340.3	2.5	50996	735
01/21/97-02/04/97	1.1E-16 $\pm$ 280X	7.0E-15 $\pm$ 13X	333.0	2.6	52020	735
02/04/97-02/18/97	4.5E-17 $\pm$ 540X	3.1E-13 $\pm$ 2.1X	338.0	2.3	47439	735
02/18/97-03/04/97	2.3E-16 $\pm$ 170X	1.9E-14 $\pm$ 8.4X	333.0	2.3	46366	735
03/04/97-03/18/97	5.5E-16 $\pm$ 130X	1.2E-14 $\pm$ 10X	336.0	2.4	47485	735
03/18/97-04/01/97	4.8E-16 $\pm$ 80X	2.0E-14 $\pm$ 7.9X	338.6	2.4	49124	735
04/01/97-04/15/97	3.8E-17 $\pm$ 610X	2.5E-14 $\pm$ 7.2X	332.6	2.5	49350	735
04/15/97-04/29/97	2.5E-16 $\pm$ 130X	5.2E-14 $\pm$ 5.0X	339.0	2.4	48739	735
04/29/97-05/13/97	6.2E-17 $\pm$ 370X	1.3E-13 $\pm$ 3.1X	336.2	2.4	49181	735
05/13/97-05/27/97	3.3E-16 $\pm$ 120X	8.0E-14 $\pm$ 4.0X	336.6	2.4	49138	735
05/27/97-06/10/97	2.5E-16 $\pm$ 130X	6.5E-14 $\pm$ 4.5X	331.4	2.4	47895	735
06/10/97-06/24/97	5.4E-17 $\pm$ 490X	2.6E-14 $\pm$ 7.0X	335.7	2.4	48033	735
06/24/97-07/08/97	5.8E-17 $\pm$ 400X	1.2E-14 $\pm$ 10X	339.6	2.4	48803	735
07/08/97-07/22/97	6.6E-17 $\pm$ 370X	1.1E-14 $\pm$ 11X	335.0	2.4	48386	735
07/22/97-08/05/97	1.5E-16 $\pm$ 180X	9.6E-15 $\pm$ 12X	335.9	2.4	48132	735
08/05/97-08/19/97	1.6E-16 $\pm$ 170X	9.9E-15 $\pm$ 12X	333.6	2.4	47605	735
08/19/97-09/02/97	1.7E-16 $\pm$ 170X	1.3E-14 $\pm$ 10X	336.6	2.3	45571	735
09/02/97-09/16/97	3.5E-16 $\pm$ 120X	6.3E-15 $\pm$ 15X	335.0	2.4	47634	735
09/16/97-09/30/97	3.8E-16 $\pm$ 100X	7.9E-15 $\pm$ 13X	335.0	2.2	45094	735
09/30/97-10/14/97	6.7E-16 $\pm$ 70X	3.7E-15 $\pm$ 20X	336.0	2.2	44981	735
10/14/97-10/28/97	4.9E-17 $\pm$ 480X	1.6E-15 $\pm$ 31X	336.0	2.3	46419	735
10/28/97-11/11/97	3.3E-16 $\pm$ 110X	2.4E-15 $\pm$ 25X	335.0	2.2	44466	735
11/11/97-11/25/97	2.4E-17 $\pm$ 870X	2.3E-15 $\pm$ 28X	344.6	1.9	39298	735
11/25/97-12/09/97	8.0E-17 $\pm$ 370X	7.3E-15 $\pm$ 15X	326.0	2.0	39494	735
12/09/97-12/22/97	3.5E-16 $\pm$ 110X	3.0E-15 $\pm$ 23X	267.0	2.6	42234	735
12/22/97-12/31/97			0.0	0.0	0	735

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

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ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:24

296-A-30: 241-AN ALL ANNULI (E903)

01/01/97 through 12/31/97

Total System Flow: $7.4\text{E}+10$ Liters = $2.6\text{E}+09$ Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.55

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	5.1E-08	3.8E-16	5.9E-16
Total β	2.2E-07	1.6E-15	3.6E-15

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296-A-30: 241-AN ALL ANNULI (E903)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α $\mu\text{Ci/ml}$	9.0E-12 Total β $\mu\text{Ci/ml}$	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft ³	Stack FlowRate CFH
On/Off Dates						
12/27/96-01/07/97	3.5E-16 $\pm$ 140%	2.7E-15 $\pm$ 27%	264.0	2.2	34673	3500
01/07/97-01/21/97	5.9E-16 $\pm$ 72%	2.1E-15 $\pm$ 26%	340.4	2.4	49770	3500
01/21/97-02/04/97	2.1E-16 $\pm$ 170%	2.5E-15 $\pm$ 23%	333.0	2.5	49414	3500
02/04/97-02/18/97	4.3E-17 $\pm$ 540%	3.6E-15 $\pm$ 19%	338.0	2.5	49703	3500
02/18/97-03/04/97	4.4E-16 $\pm$ 100%	1.3E-15 $\pm$ 35%	333.5	2.3	46426	3500
03/04/97-03/18/97	4.1E-16 $\pm$ 90%	1.5E-15 $\pm$ 31%	336.1	2.5	49710	3500
03/18/97-12/31/97			0.0	0.0	0	5396

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:24

296-A-40: 241-AP TANK FARM EXHAUST (E013, E028, X013)

01/01/97 through 12/31/97

Total System Flow: 1.4E+10 Liters = 4.9E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.80
Halogens: 0.87

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	1.1E-09	6.7E-17	2.5E-16
Ru-106	ND	<0.0E+00	n/a
Sn-113	ND	<0.0E+00	n/a
Sb-125	ND	<0.0E+00	n/a
I-129	ND	<0.0E+00	n/a
Cs-134	ND	<0.0E+00	n/a
Cs-137	1.0E-09	6.1E-17	2.4E-16
Pu-238	ND	<0.0E+00	n/a
Pu239/40	4.2E-10	2.5E-17	8.9E-17
Am-241	6.8E-10	3.9E-17	4.5E-17
Total α	ND	<0.0E+00	n/a
Total β	2.9E-08	1.7E-15	8.5E-15

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296-A-40: 241-AP TANK FARM EXHAUST (E013)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α $\mu\text{Ci}/\text{ml}$	9.0E-12 Total β $\mu\text{Ci}/\text{ml}$	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft ³	Stack FlowRate CFH
On/Off Dates						
12/27/96-01/07/97	4.5E-16 $\pm$ 140%	2.7E-15 $\pm$ 31%	262.0	1.7	27069	923
01/07/97-01/21/97	7.5E-17 $\pm$ 440%	1.0E-15 $\pm$ 48%	338.2	1.7	35189	923
01/21/97-02/04/97	1.4E-17 $\pm$ 999%	1.6E-15 $\pm$ 35%	334.6	1.9	38192	923
02/04/97-02/18/97	1.7E-16 $\pm$ 210%	2.3E-15 $\pm$ 28%	339.6	1.9	39308	923
02/18/97-03/04/97	1.2E-16 $\pm$ 210%	7.4E-16 $\pm$ 56%	331.4	1.9	37090	923
03/04/97-03/18/97	4.2E-16 $\pm$ 110%	6.8E-16 $\pm$ 58%	342.2	1.8	37824	923
03/18/97-04/01/97	4.3E-17 $\pm$ 480%	8.5E-16 $\pm$ 14%	336.5	1.9	37150	923
04/01/97-04/15/97	2.8E-16 $\pm$ 150%	1.5E-15 $\pm$ 37%	339.0	1.8	37592	923
04/15/97-04/29/97	2.2E-16 $\pm$ 180%	9.1E-16 $\pm$ 50%	336.7	1.8	35682	923
04/29/97-05/13/97	3.3E-16 $\pm$ 130%	4.5E-16 $\pm$ 90%	335.6	1.8	35695	923
05/13/97-05/27/97	1.8E-16 $\pm$ 240%	6.7E-16 $\pm$ 61%	341.2	1.8	36026	923
05/27/97-06/10/97	3.9E-17 $\pm$ 580%	8.9E-16 $\pm$ 51%	335.8	1.8	36364	923
06/10/97-06/24/97	7.9E-17 $\pm$ 420%	4.1E-15 $\pm$ 22%	334.0	1.7	33817	923
06/24/97-07/08/97	3.3E-16 $\pm$ 130%	1.2E-15 $\pm$ 45%	335.7	1.8	35288	923
07/08/97-07/22/97	9.0E-17 $\pm$ 370%	1.2E-15 $\pm$ 42%	336.6	1.7	35195	923
07/22/97-08/05/97	3.7E-17 $\pm$ 600%	1.5E-15 $\pm$ 38%	339.8	1.8	36045	923
08/05/97-08/19/97	9.4E-17 $\pm$ 330%	3.0E-15 $\pm$ 25%	333.3	1.8	36979	923
08/19/97-09/02/97	9.3E-17 $\pm$ 330%	2.7E-15 $\pm$ 26%	335.9	1.8	37164	923
09/02/97-09/16/97	1.7E-16 $\pm$ 230%	1.7E-15 $\pm$ 33%	339.0	1.9	38911	923
09/16/97-09/30/97	9.2E-17 $\pm$ 330%	1.5E-15 $\pm$ 35%	335.0	1.9	38908	923
09/30/97-10/14/97	8.6E-17 $\pm$ 340%	1.3E-15 $\pm$ 38%	337.0	1.9	39261	923
10/14/97-10/28/97	1.7E-16 $\pm$ 200%	1.5E-15 $\pm$ 35%	333.5	1.9	39013	923
10/28/97-11/11/97	5.3E-17 $\pm$ 530%	1.0E-15 $\pm$ 44%	334.0	1.9	38806	923
11/11/97-11/25/97	2.9E-16 $\pm$ 130%	4.7E-16 $\pm$ 86%	337.0	2.1	42188	923
11/25/97-12/09/97	3.1E-17 $\pm$ 640%	1.4E-15 $\pm$ 35%	335.5	2.1	41371	923
12/09/97-12/22/97	4.5E-17 $\pm$ 490%	8.6E-16 $\pm$ 51%	304.0	2.1	37396	923
12/22/97-12/31/97			0.0	0.0	0	923

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCS).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

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296-A-40: 241-AP TANK FARM EXHAUST (E028)

01/01/97 to 12/31/97

Page 1

Warning Levels:	3.0E-11 Ru-106 µCi/ml	1.0E-09 Sn-113 µCi/ml	1.0E-09 Sb-125 µCi/ml	7.0E-11 I-129 µCi/ml	4.0E-10 Cs-137 µCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
On/Off Dates									
01/01/97-02/04/97						0.0	0.0	0	923
02/04/97-02/11/97	-2.4E-14 ± 140%	? 1.6E-15 ± 250%	-1.4E-15 ± 610%	? 2.6E-13 ± 120%	? 1.6E-15 ± 210%	168.5	1.9	19609	923
02/11/97-05/06/97						0.0	0.0	0	923
05/06/97-05/13/97	-1.4E-14 ± 260%	? 1.3E-15 ± 380%	-4.5E-15 ± 240%	? 1.3E-13 ± 270%	? 2.2E-15 ± 190%	162.3	1.8	17075	923
05/13/97-08/19/97						0.0	0.0	0	923
08/19/97-08/26/97	-3.4E-14 ± 100%	? 3.4E-15 ± 120%	? 5.9E-15 ± 150%	? 1.2E-13 ± 270%	? 2.5E-16 ± 999%	167.5	1.9	19287	923
08/26/97-12/02/97						0.0	0.0	0	923
12/02/97-12/09/97	-2.5E-14 ± 140%	-3.1E-15 ± 150%	? 4.2E-15 ± 240%	? 1.3E-13 ± 260%	-1.5E-15 ± 310%	170.8	1.7	17660	923
12/09/97-12/31/97						0.0	0.0	0	923

SW80L KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

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296-A-40: 241-AP TANK FARM EXHAUST (X013)

01/01/97 to 12/31/97

Page 1

Warning Levels:	9.0E-12 Sr-90 μCi/ml	3.0E-11 Ru-106 μCi/ml	1.0E-09 Sn-113 μCi/ml	1.0E-09 Sb-125 μCi/ml	2.0E-10 Cs-134 μCi/ml	4.0E-10 Cs-137 μCi/ml	3.0E-14 Pu-238 μCi/ml	2.0E-14 Pu239/40 μCi/ml	2.0E-14 Am-241 μCi/ml
On/Off Dates									
12/27/96-03/18/97	? 2.6E-16 ± 170%	? 7.2E-16 ± 130%	? 8.9E-17 ± 130%	? 2.2E-18 ± 999%	? 1.9E-17 ± 580%	? 1.4E-16 ± 73%	? 3.9E-18 ± 200%	8.9E-17 ± 30%	4.3E-17 ± 50%
03/18/97-06/24/97	2.5E-16 ± 70%	? 5.0E-17 ± 99%	? 7.9E-17 ± 130%	? 8.6E-17 ± 240%	? 4.6E-17 ± 190%	? 1.0E-16 ± 91%	? 6.7E-18 ± 270%	1.5E-17 ± 72%	3.4E-17 ± 45%
06/24/97-09/30/97	? 2.3E-16 ± 90%	? 9.9E-17 ± 79%	? 5.3E-17 ± 180%	? 7.1E-17 ± 290%	? 5.1E-17 ± 180%	? 1.6E-16 ± 56%	? 1.4E-18 ± 720%	6.8E-18 ± 91%	3.7E-17 ± 59%
09/30/97-12/22/97	? 5.6E-16 ± 70%	? 4.9E-16 ± 160%	? 4.7E-17 ± 170%	? 2.0E-18 ± 99%	? 1.4E-17 ± 620%	? 2.4E-16 ± 55%	? 3.7E-18 ± 220%	5.0E-18 ± 100%	4.5E-17 ± 45%
12/22/97-12/31/97									

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

296-A-40: 241-AP TANK FARM EXHAUST (X013)

01/01/97 to 12/31/97

Page 2

Warning Levels:	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
On/Off Dates				
12/27/96-03/18/97	1948.2	1.8	214667	923
03/18/97-06/24/97	2344.8	1.8	252231	923
06/24/97-09/30/97	2356.0	1.8	258484	923
09/30/97-12/22/97	1982.3	2.0	238029	923
12/22/97-12/31/97	0.0	0.0	0	923

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:24

296-A-41: 241-AP TANK FARM ANNULUS (E015)

01/01/97 through 12/31/97

Total System Flow: 1.2E+11 Liters = 4.4E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.80

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	ND	<0.0E+00	n/a
Total β	2.6E-07	1.7E-15	5.0E-15

SYN80L KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:41

296-B-28: 244-BX SALT WELL RECEIVER & ANN. (E886, X886)

01/01/97 through 12/31/97

Total System Flow: 3.1E+09 Liters = 1.1E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.72

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	1.7E-09	4.0E-16	1.4E-15
Cs-134	ND	<0.0E+00	n/a
Cs-137	7.4E-10	1.8E-16	4.3E-16
Pu-238	ND	<0.0E+00	n/a
Pu239/40	1.3E-10	3.0E-17	8.8E-17
Am-241	3.6E-10	8.5E-17	1.0E-16
Total α	1.1E-09	2.7E-16	2.1E-15
Total β	1.7E-08	3.9E-15	1.9E-14

04/21/98 12:45

Warning Levels:		2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates		Total α	Total β	Time	FlowRate	Volume	FlowRate
		$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	Hours	CFH	ft ³	CFH
12/31/96-01/08/97	1.0E-15 $\pm$ 110%	2.1E-15 $\pm$ 53%	191.0	1.3	14539	205	
01/08/97-01/22/97	8.4E-17 $\pm$ 570%	3.9E-15 $\pm$ 28%	340.6	1.1	22937	205	
01/22/97-02/05/97	1.4E-16 $\pm$ 340%	7.0E-15 $\pm$ 24%	331.4	0.8	16647	205	
02/05/97-02/20/97	1.1E-15 $\pm$ 70%	5.8E-15 $\pm$ 20%	360.7	1.3	27716	205	
02/20/97-03/05/97	1.3E-16 $\pm$ 360%	2.8E-16 $\pm$ 200%	312.0	1.3	25081	205	
03/05/97-03/19/97	2.6E-16 $\pm$ 200%	1.2E-15 $\pm$ 52%	335.1	1.3	26232	205	
03/19/97-04/02/97	7.6E-16 $\pm$ 95%	2.4E-15 $\pm$ 36%	335.5	1.3	25431	205	
04/02/97-04/16/97	1.1E-15 $\pm$ 82%	2.5E-15 $\pm$ 38%	336.8	1.1	22083	205	
04/16/97-04/30/97	7.4E-16 $\pm$ 150%	1.2E-15 $\pm$ 95%	335.0	0.8	15260	205	
04/30/97-05/14/97	5.9E-17 $\pm$ 920%	1.7E-15 $\pm$ 44%	335.9	1.2	23682	205	
05/14/97-05/28/97	2.1E-15 $\pm$ 47%	1.8E-15 $\pm$ 44%	321.7	1.1	21920	205	
05/28/97-06/11/97	3.7E-16 $\pm$ 180%	1.9E-14 $\pm$ 13%	272.0	1.3	20836	205	
06/11/97-06/25/97	2.4E-16 $\pm$ 180%	9.5E-16 $\pm$ 52%	337.0	1.6	31586	205	
06/25/97-07/09/97	3.1E-16 $\pm$ 180%	1.1E-15 $\pm$ 56%	336.7	1.2	24343	205	
07/09/97-07/23/97	4.9E-16 $\pm$ 130%	2.1E-15 $\pm$ 40%	315.3	1.3	23873	205	
07/23/97-08/06/97	4.8E-16 $\pm$ 130%	3.1E-15 $\pm$ 31%	326.3	1.2	24368	205	
08/06/97-08/20/97	5.6E-16 $\pm$ 100%	1.7E-15 $\pm$ 39%	296.7	1.7	29696	205	
08/20/97-09/03/97	5.9E-16 $\pm$ 100%	2.2E-15 $\pm$ 34%	283.2	1.7	28510	205	
09/03/97-09/17/97	6.2E-17 $\pm$ 530%	2.5E-15 $\pm$ 35%	336.5	1.2	24512	205	
09/17/97-10/01/97	5.8E-16 $\pm$ 110%	3.7E-15 $\pm$ 27%	335.7	1.3	27189	205	
10/01/97-10/15/97	3.9E-16 $\pm$ 130%	3.0E-15 $\pm$ 29%	335.7	1.5	29301	205	
10/15/97-10/29/97	5.9E-16 $\pm$ 110%	2.8E-15 $\pm$ 31%	337.1	1.3	26112	205	
10/29/97-11/12/97	3.2E-16 $\pm$ 140%	5.3E-15 $\pm$ 19%	335.0	1.7	33988	205	
11/12/97-11/26/97	6.3E-16 $\pm$ 78%	4.7E-15 $\pm$ 22%	296.4	1.7	30682	205	
11/26/97-12/10/97	9.4E-16 $\pm$ 60%	3.3E-15 $\pm$ 22%	320.3	2.1	39762	205	
12/10/97-12/23/97	4.7E-16 $\pm$ 110%	1.2E-14 $\pm$ 13%	311.0	1.8	33250	205	
12/23/97-12/31/97			0.0	0.0	0	205	

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

Page 1

296-B-28: 296-B-28 STACK SAMPLER (3886)									
01/01/97 to 12/31/97									
Harming Levels:									
On/Off Dates	9.0E-12 µCi/m	2.0E-10 µCi/m	4.0E-10 µCi/m	3.0E-14 µCi/m	2.0E-14 µCi/m	2.0E-14 µCi/m	Collect Hours	Sample Flowrate CFM	Stack Flowrate CFM
12/31/96-03/19/97	1.4E-15 ± 100%	1.7E-17 ± 520%	4.3E-16 ± 50%	2.5E-18 ± 180%	8.0E-17 ± 70%	1.0E-15 ± 30%	274.5	1.2	150790
04/01/97-06/01/97	1.4E-15 ± 170%	4.6E-17 ± 270%	1.9E-16 ± 90%	2.2E-18 ± 950%	4.4E-18 ± 140%	9.1E-17 ± 41%	274.5	1.2	150790
06/25/97-09/17/97	1.4E-15 ± 40%	4.6E-17 ± 520%	2.9E-16 ± 50%	1.2E-17 ± 180%	1.8E-17 ± 76%	6.0E-17 ± 43%	1894.7	1.4	155289
09/17/97-12/23/97							2272.7	1.6	220279
12/23/97-12/31/97							0.0	0.0	0

SYMBOL KEY: * Concentration exceeds Harming Level (factored DCS). ? Questionable Result - No Peak Detected. ~ Stack Flowrate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:25

296-C-5: 244-CR VAULT CELL & VESSEL VENT (E069, X069)

01/01/97 through 12/31/97

Total System Flow: 4.8E+10 Liters = 1.7E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.83

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	9.2E-08	1.6E-15	2.6E-15
Cs-134	ND	<0.0E+00	n/a
Cs-137	1.7E-07	2.9E-15	3.5E-15
Pu-238	ND	<0.0E+00	n/a
Pu239/40	1.2E-09	2.0E-17	5.0E-17
Am-241	2.2E-09	3.9E-17	5.1E-17
Total α	8.1E-09	1.4E-16	8.1E-16
Total β	4.3E-07	7.4E-15	2.9E-14

04/21/98 12:45

296-C-5: 244-CR VAULT CELL & VESSEL VENT (E069)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates	Total α μCi/m	Total β μCi/m	Time Hours	FlowRate CFM	Volume ft3	FlowRate CFM
12/27/96-01/07/97	6.4E-16 ± 95%	2.9E-14 ± 7.5%	259.5	2.2	34171	3228
01/07/97-01/21/97	5.9E-17 ± 440%	7.1E-15 ± 14%	335.9	2.3	45604	3228
01/21/97-02/04/97	1.1E-17 ± 999%	1.1E-14 ± 11%	340.7	2.3	47152	3228
02/04/97-02/18/97	4.7E-16 ± 90%	3.7E-15 ± 20%	333.1	2.2	43580	3228
02/18/97-03/04/97	9.9E-17 ± 210%	4.3E-15 ± 18%	334.0	2.2	44649	3228
03/04/97-03/18/97	2.8E-16 ± 130%	5.7E-15 ± 17%	337.2	2.0	41468	3228
03/18/97-04/01/97	3.8E-17 ± 480%	5.6E-15 ± 16%	335.7	2.1	42720	3228
04/01/97-04/15/97	2.4E-16 ± 150%	5.6E-15 ± 16%	335.6	2.2	44673	3228
04/15/97-04/29/97	3.9E-16 ± 100%	6.0E-15 ± 16%	339.8	2.1	42619	3228
04/29/97-05/13/97	2.6E-16 ± 130%	1.1E-14 ± 11%	336.4	2.2	44415	3228
05/13/97-05/27/97	3.3E-17 ± 920%	7.7E-15 ± 14%	341.0	2.1	42081	3228
05/27/97-06/10/97	6.9E-17 ± 380%	6.2E-15 ± 15%	325.6	2.3	44336	3228
06/10/97-06/24/97	4.5E-16 ± 91%	1.3E-14 ± 10%	340.5	2.2	43959	3228
06/24/97-07/08/97	1.6E-16 ± 190%	6.9E-15 ± 14%	336.9	2.3	45755	3228
07/08/97-07/22/97	7.0E-17 ± 370%	5.7E-15 ± 16%	335.7	2.2	45063	3228
07/22/97-08/05/97	5.6E-16 ± 79%	6.4E-15 ± 15%	330.9	2.2	44207	3228
08/05/97-08/19/97	7.5E-17 ± 330%	7.3E-15 ± 14%	336.4	2.3	45900	3228
08/19/97-09/02/97	1.7E-16 ± 170%	4.2E-15 ± 18%	339.9	2.3	46347	3228
09/02/97-09/16/97	4.6E-16 ± 95%	7.5E-15 ± 14%	331.2	2.3	46586	3228
09/16/97-09/30/97	7.6E-17 ± 330%	9.0E-15 ± 12%	336.0	2.3	47221	3228
09/30/97-10/14/97	6.3E-16 ± 70%	8.9E-15 ± 12%	336.1	2.4	47446	3228
10/14/97-10/28/97	8.1E-16 ± 61%	6.9E-15 ± 14%	336.0	2.2	44685	3228
10/28/97-11/11/97	1.3E-16 ± 210%	9.1E-15 ± 12%	336.6	2.4	47653	3228
11/11/97-11/25/97	3.5E-16 ± 100%	4.9E-15 ± 17%	343.0	2.3	47267	3228
11/25/97-12/09/97	1.7E-16 ± 180%	6.9E-15 ± 14%	327.4	2.3	44769	3228
12/09/97-12/22/97	6.3E-17 ± 420%	5.3E-15 ± 17%	320.8	2.3	43942	3228
12/22/97-12/31/97			0.0	0.0	0	3228

SYMBOL KEY: * Concentration exceeds Warning Level (Factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

HNF-2665 Rev. 0

04/21/98 12:45

296-C-5: 244-CR VAULT CELL & VESSEL VENT (X069)

01/01/97 to 12/31/97

Page 1

Warning Levels:	9.0E-12 Sr-90 μCi/ml	2.0E-10 Cs-134 μCi/ml	4.0E-10 Cs-137 μCi/ml	3.0E-14 Pu-238 μCi/ml	2.0E-14 Pu-239/40 μCi/ml	2.0E-14 Am-241 μCi/ml	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft3	Stack FlowRate CFM
On/Off Dates	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12/27/96-03/18/97	2.6E-15 ± 20%	8.8E-18 ± 870%	3.5E-15 ± 15%	3.0E-18 ± 280%	5.0E-17 ± 40%	3.2E-17 ± 50%	1940.9	2.2	256616	3228
03/18/97-06/24/97	1.2E-15 ± 18%	4.5E-17 ± 150%	3.2E-15 ± 15%	3.5E-18 ± 320%	1.9E-17 ± 55%	3.5E-17 ± 40%	2354.8	2.2	304754	3228
06/24/97-09/30/97	1.4E-15 ± 17%	5.2E-17 ± 110%	3.2E-15 ± 15%	4.1E-18 ± 210%	1.0E-18 ± 450%	3.5E-17 ± 60%	2347.3	2.3	321071	3228
09/30/97-12/22/97	1.4E-15 ± 30%	6.8E-17 ± 130%	1.9E-15 ± 21%	4.6E-18 ± 220%	1.9E-17 ± 65%	5.1E-17 ± 36%	2000.7	2.3	275754	3228

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:25

296-P-16: 105-C & 106-C TANK EXHAUSTER (E068, X068)

01/01/97 through 12/31/97

Total System Flow: 4.9E+10 Liters = 1.7E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.79

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	1.7E-07	2.8E-15	7.8E-15
Cs-134	ND	<0.0E+00	n/a
Cs-137	4.8E-07	7.8E-15	1.4E-14
Pu-238	1.8E-10	2.9E-18	1.4E-17
Pu239/40	4.3E-09	6.9E-17	1.7E-16
Am-241	4.8E-09	7.8E-17	1.2E-16
Total α	2.8E-09	4.5E-17	6.8E-16
Total β	6.2E-07	1.0E-14	4.1E-14

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296-P-16: 105-C & 106-C TANK EXHAUSTER (E068)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates	Total $\mu\text{Ci}/\text{m}$	Total $\mu\text{Ci}/\text{m}$	Time Hours	FlowRate CFM	Volume ft3	FlowRate CFM
12/27/96-01/07/97	-1.0E-16 $\pm$ 330X	5.0E-15 $\pm$ 22X	259.3	1.8	27816	3282
01/07/97-01/21/97	-4.9E-17 $\pm$ 460X	9.7E-15 $\pm$ 14X	335.8	1.8	36655	3282
01/21/97-02/04/97	1.4E-17 $\pm$ 999X	2.2E-15 $\pm$ 29X	340.9	1.8	37412	3282
02/04/97-02/18/97	2.0E-16 $\pm$ 190X	4.2E-15 $\pm$ 21X	333.0	1.8	35888	3282
02/18/97-03/04/97	1.5E-16 $\pm$ 280X	5.6E-16 $\pm$ 67X	334.0	1.9	37344	3282
03/04/97-03/18/97	3.1E-16 $\pm$ 130X	8.6E-16 $\pm$ 50X	337.0	1.9	37869	3282
03/18/97-04/01/97	-4.3E-17 $\pm$ 480X	1.3E-15 $\pm$ 39X	335.7	1.9	37782	3282
04/01/97-04/15/97	-6.5E-17 $\pm$ 320X	6.5E-16 $\pm$ 63X	334.7	1.9	38488	3282
04/15/97-04/29/97	8.6E-17 $\pm$ 340X	6.6E-16 $\pm$ 58X	340.0	1.9	39445	3282
04/29/97-05/13/97	8.4E-17 $\pm$ 370X	1.2E-15 $\pm$ 41X	336.2	1.8	35894	3282
05/13/97-05/27/97	3.7E-17 $\pm$ 920X	1.8E-14 $\pm$ 9.5X	341.4	1.9	38031	3282
05/27/97-06/10/97	2.3E-16 $\pm$ 190X	3.2E-14 $\pm$ 7.8X	277.0	2.0	32576	3282
06/10/97-06/24/97	7.2E-17 $\pm$ 420X	8.0E-15 $\pm$ 15X	340.8	1.8	37306	3282
06/24/97-07/08/97	4.2E-16 $\pm$ 110X	2.4E-15 $\pm$ 28X	336.7	1.9	37439	3282
07/08/97-07/22/97	-3.4E-17 $\pm$ 640X	3.6E-15 $\pm$ 22X	335.7	1.9	37760	3282
07/22/97-08/05/97	3.3E-17 $\pm$ 980X	8.2E-15 $\pm$ 14X	0.0	0.0	40322	3282
08/05/97-08/19/97	9.2E-17 $\pm$ 330X	2.3E-14 $\pm$ 8.7X	336.3	1.9	37612	3282
08/19/97-09/02/97	2.2E-16 $\pm$ 170X	3.5E-14 $\pm$ 7.1X	340.0	1.8	35743	3282
09/02/97-09/16/97	5.0E-16 $\pm$ 95X	4.1E-14 $\pm$ 6.0X	331.0	2.2	42880	3282
09/16/97-09/30/97	-2.6E-17 $\pm$ 920X	2.6E-14 $\pm$ 8.5X	336.0	1.7	34186	3282
09/30/97-10/14/97	3.2E-16 $\pm$ 130X	1.2E-14 $\pm$ 12X	336.0	1.9	38444	3282
10/14/97-10/28/97	2.9E-16 $\pm$ 140X	7.1E-15 $\pm$ 15X	336.7	1.8	37032	3282
10/28/97-11/11/97	6.8E-16 $\pm$ 82X	9.5E-15 $\pm$ 14X	336.0	1.7	33770	3282
11/11/97-11/25/97	1.0E-16 $\pm$ 330X	3.1E-15 $\pm$ 25X	343.0	1.7	34636	3282
11/25/97-12/09/97	-5.1E-17 $\pm$ 640X	5.0E-15 $\pm$ 23X	327.6	1.3	24904	3282
12/09/97-12/22/97	8.1E-17 $\pm$ 420X	2.4E-15 $\pm$ 29X	329.0	1.8	34032	3282

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

HNF-2665 Rev. 0

04/21/98 12:45

296-P-16: 105-C & 106-C TANK EXHAUSTER (X068)

01/01/97 to 12/31/97

Page 1

Warning Levels:	9.0E-12 Sr-90 μCi/ml	2.0E-10 Cs-134 μCi/ml	4.0E-10 Cs-137 μCi/ml	3.0E-14 Pu-238 μCi/ml	2.0E-14 Pu239/40 μCi/ml	2.0E-14 Am-241 μCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
On/Off Dates	μCi/ml	μCi/ml	μCi/ml	μCi/ml	μCi/ml	μCi/ml	Hours	CFH	ft3	CFH
12/27/96-03/18/97	? 9.9E-17 ± 470%	? 6.2E-17 ± 170%	2.5E-15 ± 16%	1.4E-17 ± 80%	4.3E-17 ± 50%	? 2.2E-17 ± 110%	1940.3	1.8	212978	3282
03/18/97-06/24/97	1.4E-15 ± 20%	? 1.9E-17 ± 570%	7.9E-15 ± 14%	? 2.0E-18 ± 999%	2.6E-17 ± 58%	6.7E-17 ± 39%	2306.0	1.9	259515	3282
06/24/97-09/30/97	7.8E-15 ± 13%	? 1.7E-17 ± 530%	1.4E-14 ± 14%	? 3.3E-18 ± 550%	3.8E-17 ± 44%	1.1E-16 ± 32%	2016.1	1.9	225613	3282
09/30/97-12/22/97	1.3E-15 ± 40%	-1.7E-17 ± 690%	5.4E-15 ± 16%	? 4.5E-18 ± 350%	1.7E-16 ± 27%	1.2E-16 ± 30%	2000.8	1.7	202813	3282
12/22/97-12/31/97							0.0	0.0	0	3282

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:25

296-P-31: 209-E CRITICALITY LABORATORY EXHAUST (E209)

01/01/97 through 12/31/97

Total System Flow: 1.6E+10 Liters = 5.8E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.91

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	2.9E-10	1.6E-17	9.3E-16
Total β	1.3E-08	7.0E-16	3.0E-15

01/01/97 to 12/31/97

296 P-31: 209-E CRITICALITY LABORATORY EXHAUST (E209)

04/21/98 12:45

Warning Levels:

2.0E-14
µCi/ml9.0E-12
µCi/mlCollect
HoursSample
FlowRate
CFH

01/01/97 to 12/31/97

Page 1

On/Off Dates	2.0E-14 µCi/ml	9.0E-12 µCi/ml	Collect Hours	Sample FlowRate CFH	Sample Volume RT3	Stack FlowRate CFH
01/01/97-01/01/97	5.7E-15 ± 140%	5.7E-15 ± 22%	336.9	2.3	3449	1104
01/01/97-01/01/97	5.7E-15 ± 40%	5.7E-15 ± 22%	336.9	2.3	3449	1104
01/01/97-02/04/97	2.3E-14 ± 170%	2.2E-15 ± 26%	336.9	2.2	45009	1104
02/04/97-02/18/97	4.8E-14 ± 540%	7.9E-16 ± 48%	336.9	2.2	44459	1104
02/18/97-03/18/97	2.5E-14 ± 130%	4.9E-16 ± 63%	336.5	2.3	46350	1104
03/18/97-12/31/97			0.0	0.0	0	1104

SV080L KEY: * Concentration exceeds Warning Level (factored DCS).

? Questionable Result - No Peak Detected.

~~ Stack FlowRate of previous Sample used.

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2.4.5 242-A Evaporator

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:25

296-A-21: 242-A BUILDING EXHAUST (E645, X645)

01/01/97 through 12/31/97

Total System Flow: 1.8E+11 Liters = 6.5E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.79

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	3.6E-08	1.5E-16	5.2E-16
Total β	4.0E-06	1.7E-14	5.5E-14

04/21/98 12:45

296-A-21: 242-A BUILDING EXHAUST (E645)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates	Total α	Total β	Time	FlowRate	Volume	FlowRate
	$\mu\text{Ci}/\text{m}^3$	$\mu\text{Ci}/\text{m}^3$	Hours	CFM	ft ³	CFM
12/31/96-01/15/97	6.7E-17 ± 440%	4.0E-16 ± 100%	357.0	1.8	39520	12300
01/15/97-01/23/97	4.9E-16 ± 140%	2.6E-15 ± 36%	194.6	1.9	22526	12300
01/23/97-02/05/97	4.4E-16 ± 110%	1.1E-15 ± 44%	313.0	1.9	35501	12300
02/05/97-02/20/97			0.0	0.0	0	12300
02/20/97-03/04/97	2.3E-16 ± 180%	1.7E-15 ± 36%	284.5	1.9	32681	12300
03/04/97-09/09/97			0.0	0.0	0	12300
09/09/97-09/22/97	5.2E-16 ± 93%	5.5E-14 ± 5.5%	315.8	1.9	36665	12300
09/22/97-10/07/97	3.6E-16 ± 110%	1.3E-15 ± 38%	359.0	1.9	41393	12300
10/07/97-12/31/97			0.0	0.0	0	12300

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:25

296-A-22: 242-A EVAPORATOR (E001, E643, X643)

01/01/97 through 12/31/97

Total System Flow: 6.3E+09 Liters = 2.2E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.79
 Halogens: 0.87

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	3.3E-09	4.1E-16	1.5E-15
Ru-106	ND	-2.6E-14	-1.0E-13
Sn-113	ND	<0.0E+00	n/a
Sb-125	ND	<0.0E+00	n/a
I-129	ND	<0.0E+00	n/a
Cs-134	ND	<0.0E+00	n/a
Cs-137	ND	<0.0E+00	n/a
Pu-238	ND	<0.0E+00	n/a
Pu239/40	8.1E-11	1.0E-17	3.1E-17
Am-241	4.1E-10	5.2E-17	7.6E-17
Total α	5.8E-10	7.3E-17	9.6E-16
Total β	2.3E-08	2.9E-15	2.1E-14

04/21/98 12:45

296-A-22: 242-A EVAPORATOR (E643)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α $\mu\text{Ci}/\text{ml}$	9.0E-12 Total β $\mu\text{Ci}/\text{ml}$	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft ³	Stack FlowRate CFM
On/Off Dates						
12/31/96-01/15/97	2.4E-16 $\pm$ 200X	3.1E-16 $\pm$ 160X	355.9	1.4	29959	425
01/15/97-01/23/97	1.3E-16 $\pm$ 360X	2.1E-14 $\pm$ 13X	196.1	1.5	17858	425
01/23/97-02/05/97	7.8E-17 $\pm$ 540X	7.5E-16 $\pm$ 83X	312.1	1.5	27274	425
02/05/97-02/20/97	5.3E-16 $\pm$ 110X	9.7E-16 $\pm$ 53X	358.1	1.4	30230	425
02/20/97-03/04/97	1.3E-16 $\pm$ 360X	6.6E-16 $\pm$ 97X	284.9	1.5	25699	425
03/04/97-03/17/97	9.3E-17 $\pm$ 420X	4.5E-16 $\pm$ 120X	312.0	1.5	27798	425
03/17/97-03/31/97	4.0E-16 $\pm$ 130X	3.0E-15 $\pm$ 29X	338.6	1.4	27532	425
03/31/97-04/14/97	4.7E-16 $\pm$ 130X	1.5E-15 $\pm$ 45X	336.0	1.3	26102	425
04/14/97-04/28/97	-4.0E-17 $\pm$ 800X	5.0E-16 $\pm$ 120X	333.9	1.3	26009	425
04/28/97-05/12/97	5.6E-16 $\pm$ 110X	1.1E-14 $\pm$ 15X	339.3	1.3	26946	425
05/12/97-05/28/97	9.6E-16 $\pm$ 71X	3.0E-15 $\pm$ 27X	382.8	1.3	29988	425
05/28/97-06/12/97	6.2E-17 $\pm$ 730X	1.1E-15 $\pm$ 52X	365.0	1.3	28334	425
06/12/97-06/23/97	-8.4E-17 $\pm$ 460X	6.2E-16 $\pm$ 120X	258.5	1.3	20055	425
06/23/97-07/07/97	2.9E-16 $\pm$ 180X	8.0E-17 $\pm$ 600X	335.8	1.3	26305	425
07/07/97-07/21/97	-3.9E-17 $\pm$ 800X	5.9E-16 $\pm$ 110X	336.5	1.3	26105	425
07/21/97-08/04/97	6.3E-16 $\pm$ 110X	3.7E-15 $\pm$ 27X	333.3	1.3	25856	425
08/04/97-08/11/97	5.6E-16 $\pm$ 190X	2.5E-15 $\pm$ 50X	170.1	1.3	13119	425
08/11/97-08/26/97	-3.8E-17 $\pm$ 780X	2.4E-16 $\pm$ 210X	362.1	1.3	27925	425
08/26/97-09/09/97	-4.1E-17 $\pm$ 780X	1.1E-15 $\pm$ 53X	330.8	1.3	25661	425
09/09/97-09/22/97	1.5E-16 $\pm$ 330X	2.9E-15 $\pm$ 32X	315.9	1.3	24364	425
09/22/97-10/07/97	1.0E-16 $\pm$ 400X	1.1E-14 $\pm$ 14X	359.0	1.3	27685	425
10/07/97-10/20/97	1.2E-16 $\pm$ 400X	2.3E-15 $\pm$ 38X	309.5	1.3	24010	425
10/20/97-11/04/97	7.3E-17 $\pm$ 530X	1.3E-14 $\pm$ 13X	361.0	1.3	28017	425
11/04/97-11/17/97	8.6E-16 $\pm$ 89X	1.1E-15 $\pm$ 58X	313.8	1.3	24341	425
11/17/97-12/01/97	3.0E-16 $\pm$ 180X	6.7E-16 $\pm$ 98X	332.0	1.3	25758	425
12/01/97-12/15/97	1.3E-16 $\pm$ 350X	2.4E-15 $\pm$ 36X	340.7	1.2	24693	425
12/15/97-12/29/97	-4.6E-17 $\pm$ 740X	6.0E-16 $\pm$ 120X	335.9	1.2	23553	425
12/29/97-12/31/97			0.0	0.0	0	425

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

HNF-2665 Rev. 0

04/21/98 12:45

296-A-22: 242-A EVAPORATOR (E001)

01/01/97 to 12/31/97

Page 1

Warning Levels:	3.0E-11 Ru-106 μCi/ml	1.0E-09 Sn-113 μCi/ml	1.0E-09 Sb-125 μCi/ml	7.0E-11 I-129 μCi/ml	4.0E-10 Cs-137 μCi/ml	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft3	Stack FlowRate CFM
On/Off Dates									
01/01/97-03/25/97						0.0	0.0	0	425
03/25/97-03/31/97	-4.1E-14 ± 210%	? 2.1E-15 ± 500%	? 4.2E-15 ± 580%	? 5.6E-13 ± 140%	? 5.8E-15 ± 160%	147.4	0.9	7617	425
03/31/97-06/18/97						0.0	0.0	0	425
06/18/97-06/25/97	-6.2E-14 ± 130%	? 6.7E-16 ± 999%	-1.3E-15 ± 999%	? 6.9E-14 ± 999%	-2.2E-15 ± 430%	161.0	0.8	7850	425
06/25/97-09/18/97						0.0	0.0	0	425
09/18/97-09/25/97	-1.0E-13 ± 95%	-5.4E-15 ± 240%	-1.7E-14 ± 170%	? 1.7E-12 ± 64%	? 2.0E-15 ± 560%	167.0	0.6	6403	425
09/25/97-12/23/97						0.0	0.0	0	425
12/23/97-12/30/97	? 2.2E-14 ± 230%	-3.3E-15 ± 210%	-7.0E-15 ± 220%	-2.2E-13 ± 240%	-7.6E-15 ± 100%	168.0	1.2	11989	425
12/30/97-12/31/97						0.0	0.0	0	425

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

296-A-22: 242-A EVAP/CRYSTALLIZER AND V.V. (X643)

01/01/97 to 12/31/97

Page 1

Warning Levels:	9.0E-12 Sr-90	3.0E-11 Ru-106	1.0E-09 Sn-113	1.0E-09 Sb-125	2.0E-10 Cs-134	4.0E-10 Cs-137	3.0E-14 Pu-238	2.0E-14 Pu239/40	2.0E-14 Am-241
On/Off Dates	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$
12/31/96-03/31/97	-3.8E-16 ± 120%	-2.2E-16 ± 410%	-4.0E-17 ± 260%	? 1.0E-16 ± 230%	-4.9E-17 ± 210%	? 1.0E-16 ± 100%	? 4.6E-18 ± 140%	1.2E-17 ± 90%	? 2.7E-17 ± 90%
03/31/97-06/23/97	? 1.8E-16 ± 150%	-2.1E-16 ± 580%	-7.9E-17 ± 200%	? 2.1E-16 ± 160%	-6.2E-17 ± 250%	? 8.8E-17 ± 160%	-5.4E-18 ± 550%	3.1E-17 ± 68%	7.6E-17 ± 38%
06/23/97-09/22/97	-4.0E-16 ± 100%	-6.4E-16 ± 170%	-7.8E-17 ± 170%	-6.8E-17 ± 420%	-2.2E-17 ± 610%	? 6.1E-17 ± 200%	-2.9E-17 ± 130%	-1.4E-17 ± 100%	5.4E-17 ± 66%
09/22/97-12/29/97	1.5E-15 ± 40%	? 1.4E-16 ± 740%	-7.0E-17 ± 180%	? 2.9E-17 ± 920%	? 1.2E-17 ± 999%	? 2.8E-17 ± 450%	-5.6E-18 ± 400%	? 2.8E-18 ± 100%	7.5E-17 ± 41%
12/29/97-12/31/97									

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

296-A-22: 242-A EVAP/CRYSTALLIZER AND V.V. (X643)

01/01/97 to 12/31/97

Page 2

Warning Levels:	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft3	Stack FlowRate CFM
On/Off Dates				
12/31/96-03/31/97	2159.1	1.4	186257	425
03/31/97-06/23/97	2016.3	1.3	157331	425
06/23/97-09/22/97	2184.6	1.3	169332	425
09/22/97-12/29/97	2352.1	1.3	178054	425
12/29/97-12/31/97	0.0	0.0	0	425

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

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2.4.6 Effluent Treatment Facility (ETF)

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:26

296-E-1: ETF Stack (E036)

01/01/97 through 12/31/97

Total System Flow: 8.2E+11 Liters = 2.9E+10 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	1.1E-07	9.7E-17	1.5E-16
Total β	4.1E-07	3.6E-16	8.0E-16

04/21/98 12:45

296-E-1: ETF Stack (E036)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α $\mu\text{Ci}/\text{ml}$	9.0E-12 Total β $\mu\text{Ci}/\text{ml}$	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft ³	Stack FlowRate CFM
On/Off Dates						
12/31/96-01/29/97	8.3E-17 $\pm$ 200%	8.0E-16 $\pm$ 33%	699.7	2.0	85132	55000
01/29/97-03/27/97	9.0E-17 $\pm$ 110%	4.2E-16 $\pm$ 32%	1355.5	2.0	163440	55000
03/27/97-06/25/97	1.2E-16 $\pm$ 66%	9.3E-17 $\pm$ 61%	2120.8	2.0	254877	55000
06/25/97-09/24/97	1.5E-16 $\pm$ 46%	4.2E-16 $\pm$ 25%	2129.8	2.0	260671	55000
09/24/97-12/15/97	1.1E-16 $\pm$ 73%	3.9E-16 $\pm$ 27%	1976.0	2.0	238852	55000
12/15/97-12/31/97			0.0	0.0	0	55000

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result : No Peak Detected.

^^ Stack FlowRate of previous Sample used.

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2.5 200 West Area

2.5.1 222-S Laboratory

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:40

296-S-16: 219-S WASTE TANKS (S264)

01/01/97 through 12/31/97

Total System Flow: 2.2E+09 Liters = 7.8E+07 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	7.2E-09	2.4E-15	3.6E-15
Total β	4.0E-08	1.3E-14	4.8E-14

04/21/98 12:45

296-S-16: 219-S WASTE TANKS (S264)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α $\mu\text{Ci/ml}$	9.0E-12 Total β $\mu\text{Ci/ml}$	Collect Time Hours	Sample FlowRate CFH	Sample Volume Fls	Stack FlowRate CFH
On/Off Dates						
12/31/96-01/08/97	1.6E-15 $\pm$ 64%	4.8E-14 $\pm$ 7.8%	202.2	1.8	21609	149
01/08/97-03/25/97			0.0	0.0	0	149
03/25/97-04/08/97	3.6E-15 $\pm$ 32%	7.0E-15 $\pm$ 19%	337.0	1.3	26645	149
04/08/97-06/17/97			0.0	0.0	0	149
06/17/97-07/01/97	1.0E-15 $\pm$ 68%	9.2E-15 $\pm$ 14%	338.2	1.7	34984	149
07/01/97-07/15/97	1.5E-15 $\pm$ 42%	7.2E-15 $\pm$ 16%	331.0	1.7	32913	149
07/15/97-10/07/97			0.0	0.0	0	149
10/07/97-10/21/97	2.7E-15 $\pm$ 32%	8.8E-15 $\pm$ 16%	311.2	1.7	30809	149
10/21/97-12/31/97			0.0	0.0	0	149

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:41

296-S-21: 222-S LAB EXHAUST (S289, X289)

01/01/97 through 12/31/97

Total System Flow: $1.1\text{E}+12$ Liters = $3.7\text{E}+10$ Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	ND	<0.0E+00	n/a
Total β	8.5E-07	5.9E-16	1.4E-15

04/21/98 12:45

296-S-21: 222-S LAB EXHAUST (S289)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates	Total α	Total β	Time	FlowRate	Volume	FlowRate
	$\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$	Hours	CFH	ft3	CFH
12/31/96-01/14/97	2.7E-16 $\pm$ 180%	1.2E-16 $\pm$ 380%	341.8	1.4	28579	71002
01/14/97-03/25/97			0.0	0.0	0	71002
03/25/97-04/08/97	4.7E-16 $\pm$ 150%	4.6E-16 $\pm$ 140%	338.0	1.2	24625	71002
04/08/97-06/17/97			0.0	0.0	0	71002
06/17/97-07/01/97	4.4E-16 $\pm$ 120%	1.4E-15 $\pm$ 37%	336.0	1.9	37489	71002
07/01/97-10/07/97			0.0	0.0	0	71002
10/07/97-10/21/97	1.7E-16 $\pm$ 210%	5.7E-16 $\pm$ 69%	333.0	1.8	36765	71002
10/21/97-12/31/97			0.0	0.0	0	71002

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

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2.5.2 S-Plant

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:50

291-S-1: 202-S CANYON EXHAUST (S006, X006)

01/01/97 through 12/31/97

Total System Flow: 3.0E+11 Liters = 1.1E+10 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	ND	<0.0E+00	n/a
Total β	4.8E-06	1.1E-14	1.7E-14

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:50

296-S-2: 202-S NORTH SAMPL. GAL., HOOD, & PR ROOM (S032)

01/01/97 through 12/31/97

Total System Flow: $1.1\text{E}+10$ Liters = $3.8\text{E}+08$ Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	$3.3\text{E}-08$	$2.2\text{E}-15$	$5.6\text{E}-15$
Total β	$6.9\text{E}-08$	$4.7\text{E}-15$	$1.0\text{E}-14$

04/21/98 12:45

296-S-2: 202-S NORTH SAMPL. GAL., HOOD, & PR ROOM (S032)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α $\mu\text{Ci}/\text{ml}$	9.0E-12 Total β $\mu\text{Ci}/\text{ml}$	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft ³	Stack FlowRate CFH
On/Off Dates						
01/01/97-01/07/97			0.0	0.0	0	728
01/07/97-01/13/97	9.2E-16 $\pm$ 130%	4.4E-15 $\pm$ 35%	139.2	1.6	13285	728
01/13/97-01/20/97	7.1E-16 $\pm$ 120%	9.8E-15 $\pm$ 20%	168.8	1.7	17551	728
01/20/97-01/27/97	7.1E-16 $\pm$ 120%	9.3E-15 $\pm$ 20%	165.8	1.8	17535	728
01/27/97-02/03/97	2.7E-15 $\pm$ 43%	1.0E-14 $\pm$ 19%	168.0	1.8	17703	728
02/03/97-02/10/97	1.3E-15 $\pm$ 87%	5.1E-15 $\pm$ 29%	170.3	1.6	16615	728
02/10/97-06/23/97			0.0	0.0	0	728
06/23/97-06/30/97	5.6E-15 $\pm$ 30%	6.9E-15 $\pm$ 25%	170.0	1.7	17021	728
06/30/97-09/26/97			0.0	0.0	0	728
09/26/97-10/08/97	5.8E-16 $\pm$ 100%	-2.9E-17 $\pm$ 999%	292.8	1.6	28869	728
10/08/97-12/15/97			0.0	0.0	0	728
12/15/97-12/22/97	1.1E-15 $\pm$ 87%	6.9E-15 $\pm$ 23%	166.0	1.9	19242	728
12/22/97-12/29/97	4.5E-16 $\pm$ 170%	2.5E-15 $\pm$ 42%	169.0	1.8	17914	728
12/29/97-12/31/97			0.0	0.0	0	728

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:51

296-S-7W & 296-S-7E: 233-S BUILDING EXHAUSTERS (S016, S015)

01/01/97 through 12/31/97

Total System Flow: 1.2E+11 Liters = 4.4E+09 Cubic Ft

Radionuclide	Half-life	Release, Ci
Total α	n/a	3.2E-06
Total β	n/a	7.4E-06

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:51

296-S-7W: 233-S BUILDING EXHAUST (S016, X016)

01/01/97 through 12/31/97

Total System Flow: 1.2E+11 Liters = 4.4E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.85

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	2.8E-06	1.9E-14	5.9E-14
Total β	7.4E-06	5.1E-14	2.4E-13

04/21/98 12:45

296-S-7W: 233-S BUILDING EXHAUST (S016)

01/01/97 to 12/31/97

Page 1

Warning Levels:		2.0E-13	9.0E-11	Collect	Sample	Sample	Stack
		Total α	Total β	Time	FlowRate	Volume	FlowRate
On/Off Dates		$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	Hours	CFH	ft ³	CFH
01/01/97-01/06/97				0.0	0.0	0	8307
01/06/97-01/13/97		5.9E-14 $\pm$ 9.6%	2.4E-13 $\pm$ 3.9%	168.5	1.7	17350	8307
01/13/97-04/14/97				0.0	0.0	0	8307
04/14/97-04/21/97		1.7E-14 $\pm$ 18%	3.6E-14 $\pm$ 10%	167.3	1.7	17301	8307
04/21/97-07/07/97				0.0	0.0	0	8307
07/07/97-07/15/97		2.3E-14 $\pm$ 15%	1.0E-14 $\pm$ 18%	192.0	1.7	19802	8307
07/15/97-10/06/97				0.0	0.0	0	8307
10/06/97-10/13/97		7.8E-17 $\pm$ 940%	3.4E-15 $\pm$ 35%	167.8	1.7	17584	8307
10/31/97-12/31/97				0.0	0.0	0	8307

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:51

296-S-7E: 233-S Building Exhaust, East (S015)

01/01/97 through 12/31/97

Total System Flow: 3.4E+08 Liters = 1.2E+07 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	3.9E-07	8.4E-13	8.4E-13
Total β	4.1E-08	8.8E-14	8.8E-14

04/21/98 12:45

296-S-7E: 233-S Building Exhaust, East (S015)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α $\mu\text{Ci}/\text{ml}$	9.0E-12 Total β $\mu\text{Ci}/\text{ml}$	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft ³	Stack FlowRate CFH
On/Off Dates						
01/01/97-04/09/97			0.0	0.0	0	0
04/09/97-04/10/97	* 8.4E-13 $\pm$ 6.4%	8.8E-14 $\pm$ 16%	0.0	0.0	2751	8307
04/10/97-12/31/97			0.0	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

2.5.3 T-Plant

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:41

291-T-1: 221-T CANYON & CELLS (T785, X785)

01/01/97 through 12/31/97

Total System Flow: 4.8E+11 Liters = 1.7E+10 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.79

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	1.0E-05	1.7E-14	6.5E-14
Total β	7.5E-05	1.2E-13	2.8E-13

Warning Levels:		2.0E-13	9.0E-11	Collect	Sample	Sample	Stack
On/Off Dates		Total α $\mu\text{Ci}/\text{ml}$	Total β $\mu\text{Ci}/\text{ml}$	Time Hours	FlowRate CFM	Volume ft^3	FlowRate CFM
12/31/96-01/14/97	6.4E-14 $\pm$ 6.3%	2.8E-13 $\pm$ 2.6%	331.6	1.7	33830	32294	
01/14/97-02/11/97			0.0	0.0	0	32294	
02/11/97-02/25/97	1.6E-14 $\pm$ 12%	6.8E-14 $\pm$ 5.1%	328.5	1.8	35899	32294	
02/25/97-06/03/97			0.0	0.0	0	32294	
06/03/97-06/17/97	1.8E-14 $\pm$ 11%	5.6E-14 $\pm$ 5.4%	332.0	1.9	38658	32294	
06/17/97-07/01/97	6.5E-14 $\pm$ 6.2%	2.7E-13 $\pm$ 2.6%	269.2	2.1	33705	32294	
07/01/97-07/15/97	2.5E-14 $\pm$ 9.8%	1.0E-13 $\pm$ 4.2%	334.0	1.7	34278	32294	
07/15/97-07/23/97	1.2E-14 $\pm$ 18%	5.6E-14 $\pm$ 7.1%	194.1	1.9	21972	32294	
07/23/97-07/29/97	1.1E-14 $\pm$ 23%	3.4E-14 $\pm$ 11%	130.5	1.9	14741	32294	
07/29/97-08/12/97	4.6E-15 $\pm$ 22%	9.0E-15 $\pm$ 14%	337.0	1.9	37577	32294	
08/12/97-08/26/97	7.0E-15 $\pm$ 18%	1.8E-14 $\pm$ 9.5%	331.5	1.9	39609	32294	
08/26/97-09/09/97	5.9E-15 $\pm$ 19%	1.3E-14 $\pm$ 11%	336.6	1.9	38609	32294	
09/09/97-09/23/97	3.0E-15 $\pm$ 27%	1.3E-14 $\pm$ 11%	335.8	1.9	37867	32294	
09/23/97-10/07/97	9.7E-15 $\pm$ 16%	2.7E-14 $\pm$ 7.7%	336.0	1.9	39085	32294	
10/07/97-10/21/97	2.8E-16 $\pm$ 160%	9.6E-14 $\pm$ 4.1%	335.9	1.9	38725	32294	
10/21/97-11/04/97	8.9E-16 $\pm$ 69%	2.8E-13 $\pm$ 2.3%	337.0	2.0	39884	32294	
11/04/97-12/31/97			0.0	0.0	0	32294	

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:41

296-T-7: 2706-T Stack (T154)

01/01/97 through 12/31/97

Total System Flow: 4.4E+10 Liters = 1.6E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.70

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	1.1E-08	1.8E-16	2.8E-15
Total β	3.3E-08	5.3E-16	8.2E-15

04/21/98 12:45

296-T-7: 2706-T Stack (T154)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates	Total α	Total β	Time	FlowRate	Volume	FlowRate
	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	Hours	CFH	ft ³	CFH
01/01/97-01/31/97			719.5	0.3	14419	772
01/31/97-03/05/97	2.8E-15 $\pm$ 93%	8.2E-15 $\pm$ 37%	792.4	0.1	6718	595
03/05/97-04/08/97	2.8E-16 $\pm$ 96%	3.2E-15 $\pm$ 16%	817.8	1.6	76280	598
04/08/97-05/06/97	1.4E-15 $\pm$ 40%	2.0E-15 $\pm$ 30%	670.0	1.0	38530	1612
05/06/97-06/03/97	-1.1E-17 $\pm$ 400%	2.0E-16 $\pm$ 47%	673.4	4.4	179777	10530
06/03/97-07/11/97	2.1E-16 $\pm$ 400%	-1.3E-16 $\pm$ 640%	915.8	0.2	13711	6199
07/11/97-08/05/97	1.1E-16 $\pm$ 110%	9.9E-17 $\pm$ 110%	596.0	3.9	138959	9466
08/05/97-12/31/97			0.0	0.0	0	1383

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

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2.5.4 TRUSAF

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:41

296-T-12: 224-T BUILDING EXHAUST/EAST (T784, X784)

01/01/97 through 12/31/97

Total System Flow: 2.4E+11 Liters = 8.6E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.76

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	2.4E-07	7.6E-16	1.2E-15
Total β	2.0E-06	6.2E-15	1.5E-14

04/21/98 12:45

296-T-12: 224-T BUILDING EXHAUST/EAST (T784)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α $\mu\text{Ci}/\text{ml}$	9.0E-12 Total β $\mu\text{Ci}/\text{ml}$	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft ³	Stack FlowRate CFH
On/Off Dates						
01/01/97-03/25/97			0.0	0.0	0	16318
03/25/97-04/08/97	8.0E-16 $\pm$ 71%	1.2E-15 $\pm$ 44%	330.9	1.8	35879	16318
04/08/97-05/06/97			0.0	0.0	0	16318
05/06/97-05/20/97	7.0E-16 $\pm$ 79%	2.4E-15 $\pm$ 30%	335.0	1.7	34908	16318
05/20/97-07/15/97			0.0	0.0	0	16318
07/15/97-07/29/97	3.2E-16 $\pm$ 130%	1.6E-15 $\pm$ 37%	336.0	1.8	35472	16318
07/29/97-09/30/97			0.0	0.0	0	16318
09/30/97-10/14/97	1.2E-15 $\pm$ 46%	1.5E-14 $\pm$ 11%	333.9	1.7	34150	16318
10/14/97-12/31/97			0.0	0.0	0	16318

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

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2.5.5 U-Plant

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:51

291-U-1: 221-U CANYON & CELLS (U771, X771)

01/01/97 through 12/31/97

Total System Flow: 3.9E+11 Liters = 1.4E+10 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	8.1E-07	1.5E-15	3.0E-15
Total β	2.0E-04	3.7E-13	1.0E-12

Page 1

01/01/97 to 12/31/97

291-U-1: 221-U CANYON & CELLS (U771)

04/21/98 12:45

Warning Levels:

2.0E-14
Total α 9.0E-12
Total β Collect Sample
Time FlowRateStack
Volume FlowRateStack
Volume FlowRate

01/01/97 to 12/31/97

Page 1

On/Off Dates:

6.7E-16 $\pm$ 13041.0E-13 $\pm$ 5.94

0.0 0.0

0.0 0.0

0.0 0.0

01/01/97 to 12/31/97

Page 1

01/01/97-01/07/97

6.7E-16 $\pm$ 13041.0E-13 $\pm$ 5.94

0.0 0.0

0.0 0.0

0.0 0.0

01/01/97 to 12/31/97

Page 1

01/08/97-01/14/97

3.0E-15 $\pm$ 4115.8E-13 $\pm$ 2.51

167.0 1.7

17145 25896

0.0 0.0

01/01/97 to 12/31/97

Page 1

01/14/97-05/28/97

3.0E-15 $\pm$ 4115.8E-13 $\pm$ 2.51

167.0 1.7

17145 25896

0.0 0.0

01/01/97 to 12/31/97

Page 1

05/28/97-06/04/97

6.6E-16 $\pm$ 4111.6E-13 $\pm$ 2.21

69.0 0.0

79220 25896

0.0 0.0

01/01/97 to 12/31/97

Page 1

06/04/97-09/23/97

2.9E-15 $\pm$ 4041.0E-12 $\pm$ 1.81

167.0 1.9

19213 25896

0.0 0.0

01/01/97 to 12/31/97

Page 1

09/23/97-11/01/97

8.3E-16 $\pm$ 11043.0E-13 $\pm$ 3.34

167.0 1.9

19414 25896

0.0 0.0

01/01/97 to 12/31/97

Page 1

11/01/97-12/22/97

2.9E-15 $\pm$ 4041.0E-12 $\pm$ 1.81

167.0 1.9

19213 25896

0.0 0.0

01/01/97 to 12/31/97

Page 1

12/22/97-12/31/97

8.3E-16 $\pm$ 11043.0E-13 $\pm$ 3.34

167.0 1.9

19414 25896

0.0 0.0

01/01/97 to 12/31/97

Page 1

SHOUL KEY: * Concentration exceeds Warning Level (factored DC6). ? Questionable Result - No Peak Detected.

** Stack FlowRate of previous Sample used.

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2.5.6 West Tank Farms

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:41

296-P-22: ALL SY ANNULI (W191)

01/01/97 through 12/31/97

Total System Flow: 1.3E+10 Liters = 4.5E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.80

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	4.4E-09	2.8E-16	5.6E-16
Total β	6.1E-08	3.8E-15	5.7E-15

04/21/98 12:45

256-P-22: ALL SV ANNUAL (M191)

01/01/97 to 12/31/97

Page 1

Warning Levels:

On/off Dates

On/off Dates	Total g	Total lb	Collect Time	Sample Flowrate	Sample Volume	Stack Flowrate
01/01/97-01/02/97	1.9E-16 ± 340X	9.4E-16 ± 100X	0.0	0.0	0	859
01/03/97-01/04/97	5.6E-16 ± 84X	4.4E-15 ± 18X	0.0	0.0	174.0	859
01/05/97-01/06/97	5.1E-16 ± 90X	5.7E-15 ± 17X	0.0	0.0	47389	859
01/07/97-01/08/97	1.6E-16 ± 210X	3.3E-15 ± 22X	0.0	0.0	3953.0	859
01/09/97-01/10/97			0.0	0.0	39457	859
01/11/97-01/12/97			0.0	0.0	0	859

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCS).

? Questionable Result - No Peak Detected.

Stack Flowrate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:42

296-P-23 & 296-P-28: EXHAUSTERS FOR ALL SY TANKS (W190, W195)

01/01/97 through 12/31/97

Total System Flow: 1.3E+10 Liters = 4.7E+08 Cubic Ft

Radionuclide	Halflife	Release, Ci
Total α	n/a	2.7E-09
Total β	n/a	1.1E-06

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:42

296-P-23: EXHAUSTER FOR ALL SY TANKS (W190, X190)

01/01/97 through 12/31/97

Total System Flow: 1.3E+10 Liters = 4.7E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.79

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	2.7E-09	1.6E-16	1.9E-15
Total β	1.1E-06	6.5E-14	7.9E-13

04/21/98 12:45

296-P-23: EXHAUSTER FOR ALL SY TANKS (W190)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates	Total α μCi/ml	Total β μCi/ml	Time Hours	FlowRate CFH	Volume ft3	FlowRate CFH
12/11/96-01/02/97	1.3E-16 ± 180X	1.5E-13 ± 2.7X	524.7	1.9	58454	896
01/02/97-01/08/97	1.1E-15 ± 100X	7.9E-13 ± 2.3X	144.0	1.7	15012	896
01/08/97-01/22/97	-3.7E-17 ± 740X	5.5E-14 ± 6.2X	336.4	1.5	29341	896
02/05/97-02/19/97	9.3E-17 ± 350X	8.9E-14 ± 4.5X	339.4	1.7	35482	896
02/19/97-03/05/97	3.4E-16 ± 130X	1.4E-13 ± 3.6X	335.6	1.8	35668	896
03/05/97-03/19/97	3.1E-16 ± 140X	9.2E-14 ± 4.3X	335.7	1.8	36416	896
03/19/97-04/02/97	7.8E-16 ± 71X	1.5E-13 ± 3.3X	332.6	1.8	36111	896
04/02/97-04/16/97	4.4E-16 ± 100X	8.3E-14 ± 4.6X	335.7	1.8	35410	896
04/16/97-04/30/97	1.9E-15 ± 37X	3.5E-14 ± 7.2X	337.0	1.7	34769	896
05/14/97-05/28/97	1.3E-16 ± 360X	8.3E-14 ± 5.5X	337.4	1.2	25167	896
05/28/97-06/11/97	9.8E-17 ± 340X	2.1E-14 ± 9.4X	336.9	1.7	34465	896
06/11/97-06/25/97	3.6E-16 ± 130X	1.7E-14 ± 10X	337.4	1.7	33459	896
06/25/97-07/09/97	5.9E-16 ± 88X	3.6E-14 ± 7.1X	333.3	1.8	35444	896
07/09/97-07/23/97	4.5E-16 ± 110X	1.0E-14 ± 13X	336.6	1.8	36290	896
07/23/97-08/06/97	7.8E-17 ± 400X	1.3E-14 ± 12X	335.9	1.9	37394	896
08/06/97-08/20/97	1.7E-16 ± 230X	4.8E-15 ± 19X	335.7	1.9	39152	896
08/20/97-09/03/97	2.9E-16 ± 150X	4.5E-14 ± 5.9X	341.0	1.9	39875	896
09/03/97-09/17/97	2.9E-16 ± 130X	8.9E-14 ± 4.2X	331.3	2.0	39670	896
09/17/97-10/01/97	1.8E-16 ± 190X	3.3E-14 ± 7.0X	336.0	2.0	39835	896
10/01/97-10/15/97	2.8E-16 ± 130X	1.2E-14 ± 12X	336.0	2.0	40579	896
10/15/97-10/29/97	1.6E-16 ± 210X	6.5E-15 ± 16X	336.7	2.0	40624	896
10/29/97-11/12/97	5.6E-17 ± 510X	4.2E-14 ± 6.1X	335.7	2.0	40093	896
11/12/97-11/26/97	7.7E-17 ± 370X	7.0E-14 ± 4.7X	335.5	2.1	41418	896
11/26/97-12/10/97	7.5E-17 ± 400X	2.5E-14 ± 8.2X	336.0	1.8	37154	896
12/10/97-12/23/97	4.7E-16 ± 110X	3.2E-14 ± 7.6X	312.0	1.8	33760	896
12/23/97-12/31/97			0.0	0.0	0	896

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

HNF-2665 Rev. 0

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:43

296-S-15: EXHAUSTER FOR ALL SX TANKS (W111, X111)

01/01/97 through 12/31/97

Total System Flow: $5.1\text{E}+10$ Liters = $1.8\text{E}+09$ Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.84

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	9.0E-09	1.5E-16	5.8E-15
Total β	4.4E-07	7.3E-15	3.6E-14

04/21/98 12:45

296-S-15: EXHAUSTER FOR ALL SX TANKS (W111)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates	Total g µCi/ml	Total g µCi/ml	Time Hours	FlowRate CFH	Volume ft3	FlowRate CFH
12/11/96-01/02/97	1.3E-16 ± 360X	7.2E-15 ± 19X	434.5	1.0	24848	3689
01/02/97-01/08/97	5.8E-15 ± 42X	4.2E-15 ± 46X	144.9	1.0	8556	3689
01/08/97-01/22/97	1.2E-16 ± 360X	4.0E-15 ± 30X	333.0	0.9	18875	3551
01/22/97-02/05/97	1.1E-16 ± 540X	3.6E-14 ± 9.3X	334.0	1.0	19833	3689
02/05/97-02/19/97	7.4E-17 ± 550X	3.1E-15 ± 34X	339.9	1.0	19970	3689
02/19/97-03/05/97	1.5E-16 ± 390X	2.6E-15 ± 38X	335.7	1.0	19915	3689
03/05/97-03/19/97	1.4E-16 ± 430X	1.2E-15 ± 60X	335.8	0.9	19052	3689
03/19/97-04/02/97	1.1E-15 ± 89X	9.9E-15 ± 19X	332.0	0.9	17597	3689
04/02/97-04/16/97	4.0E-16 ± 180X	5.3E-15 ± 27X	335.7	0.9	17981	3689
04/16/97-04/30/97	1.0E-15 ± 100X	4.8E-15 ± 31X	336.2	0.8	15752	3689
04/30/97-05/14/97	4.6E-15 ± 130X	1.6E-14 ± 42X	332.0	0.1	2618	520
05/14/97-05/28/97	4.5E-16 ± 180X	2.8E-14 ± 12X	337.6	0.8	17044	3123
05/28/97-06/11/97	7.2E-16 ± 130X	2.1E-15 ± 49X	336.4	0.8	16808	3689
06/11/97-06/25/97	6.2E-16 ± 130X	3.9E-15 ± 30X	334.5	1.0	19726	3689
06/25/97-07/09/97	5.8E-17 ± 800X	2.4E-15 ± 44X	328.5	0.9	17534	3614
07/09/97-07/23/97	8.7E-17 ± 540X	5.8E-16 ± 150X	336.7	0.9	17465	3689
07/23/97-08/06/97	1.9E-16 ± 400X	1.5E-15 ± 62X	331.2	0.8	15851	3642
08/06/97-08/20/97	2.1E-15 ± 130X	3.9E-15 ± 64X	335.7	0.3	5751	2607
08/20/97-09/03/97	1.4E-15 ± 110X	2.1E-14 ± 16X	215.8	0.9	12015	2335
09/03/97-09/17/97	7.7E-16 ± 130X	1.3E-14 ± 19X	325.2	0.8	15028	3620
09/17/97-10/01/97	6.2E-16 ± 130X	1.7E-15 ± 53X	336.2	0.9	18577	3689
10/01/97-10/15/97	6.2E-16 ± 130X	2.8E-15 ± 47X	331.4	0.9	18545	3637
10/15/97-10/29/97	2.3E-16 ± 210X	1.3E-15 ± 46X	336.6	1.4	28494	3689
10/29/97-11/12/97	6.0E-16 ± 140X	4.7E-15 ± 28X	335.5	0.9	18486	3674
11/12/97-11/26/97	1.6E-16 ± 370X	4.0E-15 ± 29X	335.0	1.0	20419	3689
11/26/97-12/10/97	5.5E-16 ± 110X	8.7E-15 ± 17X	336.0	1.4	28502	3689
12/10/97-12/23/97	1.1E-16 ± 520X	1.5E-14 ± 17X	259.6	0.9	14353	3065
12/23/97-12/31/97			0.0	0.0	0	3689

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:43

296-S-18: 242-S BUILDING EXHAUST (W096, X096)

01/01/97 through 12/31/97

Total System Flow: 1.1E+11 Liters = 3.8E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.69

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	1.1E-07	7.3E-16	6.2E-15
Total β	4.1E-07	2.6E-15	8.3E-15

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296-S-18: 242-S BUILDING EXHAUST (N096)

01/01/97 to 12/31/97

Page 1

Warning Levels:		2.0E-14	9.0E-12	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft3	Stack FlowRate CFM
On/Off Dates		Total α μCi/ml	Total β μCi/ml				
01/01/97-01/02/97				0.0	0.0	0	7155
01/02/97-01/08/97		6.2E-15 ± 38%	8.3E-15 ± 29%	145.0	1.1	9885	7155
01/09/97-03/20/97				0.0	0.0	0	7155
03/20/97-04/02/97		5.7E-16 ± 180%	3.1E-15 ± 43%	310.7	0.7	13811	7155
04/02/97-06/25/97				0.0	0.0	0	7155
06/25/97-07/09/97		4.8E-16 ± 130%	2.1E-15 ± 39%	335.0	1.2	24075	7155
07/09/97-10/01/97				0.0	0.0	0	7155
10/01/97-10/15/97		2.3E-16 ± 210%	8.8E-16 ± 61%	336.2	1.3	27078	7155
10/15/97-12/31/97				0.0	0.0	0	7155

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:43

296-S-22: 244-S SALTWELL RECEIVER & ANNUL. (W880, X880)

01/01/97 through 12/31/97

Total System Flow: 2.1E+09 Liters = 7.4E+07 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.72

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	6.6E-09	2.3E-15	7.5E-15
Cs-134	ND	<0.0E+00	n/a
Cs-137	5.0E-10	1.7E-16	4.1E-16
Pu-238	ND	<0.0E+00	n/a
Pu239/40	4.7E-11	1.6E-17	2.7E-17
Am-241	1.1E-10	3.8E-17	6.3E-17
Total α	5.2E-10	1.8E-16	1.3E-15
Total β	9.5E-09	3.3E-15	1.5E-14

04/21/98 12:45

Warning Levels:		2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
		Total α	Total β	Time	FlowRate	Volume	FlowRate
On/Off	Dates	$\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$	Hours	CFM	ft ³	CFM
12/11/96-01/02/97		1.3E-16 $\pm$ 180x	2.1E-15 $\pm$ 23x	526.5	1.9	58882	147
01/02/97-01/08/97		3.7E-16 $\pm$ 210x	3.9E-17 $\pm$ 999x	145.1	2.0	17327	147
01/08/97-01/22/97		9.7E-16 $\pm$ 61x	5.2E-15 $\pm$ 18x	336.7	1.9	37789	147
01/22/97-02/05/97		6.3E-17 $\pm$ 540x	3.8E-15 $\pm$ 23x	335.3	1.7	33600	93
02/05/97-02/19/97		1.3E-15 $\pm$ 45x	1.5E-14 $\pm$ 11x	335.8	1.6	32722	114
02/19/97-03/05/97		2.9E-16 $\pm$ 130x	2.6E-15 $\pm$ 26x	337.0	2.0	40207	147
03/05/97-03/19/97		6.5E-17 $\pm$ 430x	7.4E-15 $\pm$ 15x	335.2	2.0	40436	147
03/19/97-04/02/97		-3.1E-17 $\pm$ 660x	7.5E-16 $\pm$ 54x	335.0	1.9	37809	147
04/02/97-04/16/97		4.3E-16 $\pm$ 100x	2.2E-15 $\pm$ 29x	336.0	1.8	36057	147
04/16/97-04/30/97		2.1E-16 $\pm$ 180x	5.4E-16 $\pm$ 86x	336.7	1.8	36589	132
04/30/97-05/14/97		5.4E-16 $\pm$ 89x	4.3E-15 $\pm$ 20x	333.5	1.9	38509	147
05/14/97-05/28/97		5.8E-16 $\pm$ 78x	1.7E-15 $\pm$ 31x	336.4	2.2	43523	147
05/28/97-06/11/97		2.0E-16 $\pm$ 180x	1.1E-15 $\pm$ 44x	337.3	1.9	39176	147
06/11/97-06/25/97		3.1E-16 $\pm$ 130x	3.4E-15 $\pm$ 23x	334.6	1.9	38629	146
06/25/97-07/09/97		5.9E-16 $\pm$ 88x	1.1E-15 $\pm$ 46x	335.8	1.8	35322	147
07/09/97-07/23/97		3.3E-16 $\pm$ 130x	3.1E-15 $\pm$ 25x	336.8	1.8	35423	147
07/23/97-08/06/97		9.9E-17 $\pm$ 400x	1.8E-15 $\pm$ 37x	336.0	1.5	29719	136
08/06/97-08/20/97		6.0E-16 $\pm$ 120x	4.4E-15 $\pm$ 23x	335.9	1.4	27893	112
08/20/97-09/03/97		5.0E-16 $\pm$ 120x	1.5E-15 $\pm$ 38x	335.0	1.6	33251	132
09/03/97-09/17/97		-5.4E-17 $\pm$ 530x	2.8E-15 $\pm$ 31x	335.0	1.4	28013	147
09/17/97-10/01/97		4.8E-16 $\pm$ 110x	2.1E-15 $\pm$ 32x	336.2	1.6	33121	147
10/01/97-10/15/97		9.1E-17 $\pm$ 400x	9.1E-16 $\pm$ 57x	335.0	1.5	30812	147
10/15/97-10/29/97		3.6E-16 $\pm$ 140x	2.0E-15 $\pm$ 35x	337.9	1.5	30626	147
10/29/97-11/12/97		3.4E-16 $\pm$ 140x	2.2E-15 $\pm$ 32x	334.5	1.6	32139	147
11/12/97-11/26/97		2.5E-16 $\pm$ 180x	1.0E-14 $\pm$ 14x	335.0	1.5	30673	145
11/26/97-12/10/97		7.6E-16 $\pm$ 90x	4.6E-15 $\pm$ 22x	335.9	1.3	26413	147
12/10/97-12/23/97		2.6E-16 $\pm$ 190x	1.9E-15 $\pm$ 37x	312.3	1.5	27633	147
12/23/97-12/31/97				0.0	0.0	0	147

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

296-S-22: 244-S SALTWELL RECIEVER & ANNULUS (X880)

01/01/97 to 12/31/97

Page 1

Warning Levels:	9.0E-12 Sr-90	2.0E-10 Cs-134	4.0E-10 Cs-137	3.0E-14 Pu-238	2.0E-14 Pu239/40	2.0E-14 Am-241	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
On/Off Dates	$\mu\text{Ci}/\text{m}$	$\mu\text{Ci}/\text{m}$	$\mu\text{Ci}/\text{m}$	$\mu\text{Ci}/\text{m}$	$\mu\text{Ci}/\text{m}$	$\mu\text{Ci}/\text{m}$				
12/11/96-03/19/97	? 2.7E-17 ± 999%	? 1.6E-17 ± 560%	? 1.4E-16 ± 69%	? 1.5E-18 ± 200%	2.2E-17 ± 60%	5.4E-17 ± 40%	2351.7	1.8	260958	131
05/19/97-06/25/97	-1.4E-16 ± 130%	? 3.3E-17 ± 240%	? 5.7E-18 ± 999%	? 6.1E-18 ± 240%	? 4.6E-18 ± 150%	4.8E-17 ± 41%	2349.6	1.9	270296	144
06/25/97-09/17/97	? 2.8E-16 ± 90%	-4.4E-17 ± 250%	2.2E-16 ± 81%	? 5.6E-18 ± 430%	1.7E-17 ± 75%	6.3E-17 ± 43%	2016.5	1.6	189626	137
09/17/97-12/23/97	7.5E-15 ± 16%	? 2.8E-17 ± 330%	4.1E-16 ± 34%	-6.3E-18 ± 350%	2.7E-17 ± 58%	? 3.0E-17 ± 100%	2328.3	1.5	211412	146
12/23/97-12/31/97							0.0	0.0	0	147

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:43

296-T-17: 242-T CELLS (W117)

01/01/97 through 12/31/97

Total System Flow: $1.7\text{E}+10$ Liters = $6.1\text{E}+08$ Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.81

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	ND	<0.0E+00	n/a
Total β	3.4E-08	1.6E-15	1.8E-15

04/21/98 12:45

296-T-17: 242-T CELLS (W117)

01/01/97 to 12/31/97

Page 1

Warning Levels:		2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates		Total α	Total β	Time	FlowRate	Volume	FlowRate
		μCi/ml	μCi/ml	Hours	CFM	ft3	CFM
12/31/96-01/08/97		6.5E-16 ± 130%	1.2E-15 ± 63%	187.6	1.7	18990	1154
01/08/97-03/19/97				0.0	0.0	0	1154
03/19/97-04/02/97		2.3E-16 ± 180%	1.8E-15 ± 34%	334.7	1.7	34686	1154
04/02/97-06/25/97				0.0	0.0	0	1154
06/25/97-07/09/97		-4.0E-17 ± 530%	1.4E-15 ± 39%	335.5	1.9	37541	1154
07/09/97-10/01/97				0.0	0.0	0	1154
10/01/97-10/15/97		5.8E-17 ± 510%	1.8E-15 ± 33%	335.7	1.8	36775	1154
10/15/97-12/23/97				0.0	0.0	0	1154
12/23/97-12/31/97				0.0	0.0	0	1154

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:43

296-T-18: 244-TX SALT WELL RECEIVER & ANN. (W882, X882)

01/01/97 through 12/31/97

Total System Flow: 3.5E+09 Liters = 1.3E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.70

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	ND	<0.0E+00	n/a
Cs-134	ND	<0.0E+00	n/a
Cs-137	7.2E-09	1.4E-15	2.4E-15
Pu-238	8.6E-12	1.7E-18	9.6E-18
Pu239/40	2.6E-10	5.2E-17	6.6E-17
Am-241	5.1E-10	1.0E-16	1.4E-16
Total α	1.8E-09	3.5E-16	1.9E-15
Total β	1.7E-08	3.4E-15	1.6E-14

04/21/98 12:45

Warning Levels:		2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
		Total α	Total β	Time	FlowRate	Volume	FlowRate
On/Off Dates		$\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$	Hours	CFH	ft ³	CFH
12/31/96-01/08/97	1.9E-15 $\pm$ 61%	3.4E-15 $\pm$ 32%	187.6	1.7	19663	219	
01/08/97-01/22/97	1.6E-15 $\pm$ 37%	6.2E-15 $\pm$ 15%	336.9	1.9	36388	240	
01/22/97-02/05/97	4.9E-16 $\pm$ 540%	6.1E-15 $\pm$ 56%	336.0	0.2	4294	31	
02/05/97-02/11/97	1.6E-15 $\pm$ 110%	1.0E-14 $\pm$ 27%	147.8	1.1	9779	161	
02/11/97-02/28/97	7.7E-16 $\pm$ 110%	1.7E-15 $\pm$ 48%	211.0	1.7	20907	250	
02/28/97-03/05/97	1.8E-16 $\pm$ 100%	2.3E-16 $\pm$ 150%	313.3	2.2	40881	248	
03/05/97-03/19/97	4.7E-16 $\pm$ 91%	8.6E-16 $\pm$ 46%	335.0	2.1	41990	250	
03/19/97-04/02/97	5.2E-16 $\pm$ 100%	1.4E-15 $\pm$ 43%	334.7	1.5	29898	250	
04/02/97-04/16/97	4.0E-16 $\pm$ 130%	2.5E-15 $\pm$ 32%	335.5	1.4	28154	250	
04/16/97-04/30/97	-4.2E-17 $\pm$ 650%	8.9E-16 $\pm$ 57%	336.0	1.5	29626	250	
04/30/97-05/14/97	4.0E-16 $\pm$ 130%	9.8E-16 $\pm$ 53%	335.1	1.5	30318	250	
05/14/97-05/28/97	1.1E-15 $\pm$ 55%	2.0E-15 $\pm$ 34%	337.2	1.6	31681	250	
05/28/97-06/11/97	5.9E-16 $\pm$ 100%	1.1E-15 $\pm$ 52%	335.0	1.4	28238	247	
06/11/97-06/25/97	5.0E-16 $\pm$ 130%	1.4E-15 $\pm$ 49%	336.2	1.2	24410	246	
06/25/97-07/09/97	6.2E-16 $\pm$ 100%	6.6E-15 $\pm$ 19%	336.4	1.3	26663	250	
07/09/97-07/23/97	-6.8E-17 $\pm$ 540%	5.8E-15 $\pm$ 23%	336.0	1.1	22372	247	
07/23/97-08/06/97	1.4E-15 $\pm$ 60%	4.3E-15 $\pm$ 24%	336.0	1.4	27373	248	
08/06/97-08/20/97	5.1E-16 $\pm$ 150%	8.3E-16 $\pm$ 89%	336.0	1.1	22764	250	
08/20/97-09/03/97	1.2E-15 $\pm$ 75%	2.7E-15 $\pm$ 31%	335.0	1.3	27112	250	
09/03/97-09/17/97	8.9E-16 $\pm$ 71%	2.4E-15 $\pm$ 31%	337.0	1.6	32571	250	
09/17/97-10/01/97	5.9E-16 $\pm$ 90%	3.7E-15 $\pm$ 23%	336.0	1.7	33903	248	
10/01/97-10/15/97	6.1E-16 $\pm$ 79%	1.6E-14 $\pm$ 10%	335.7	2.0	40489	250	
10/15/97-10/29/97	4.9E-16 $\pm$ 110%	3.4E-15 $\pm$ 25%	336.8	1.5	31268	250	
10/29/97-11/12/97	5.3E-16 $\pm$ 100%	2.8E-15 $\pm$ 28%	338.3	1.5	31350	250	
11/12/97-11/26/97	3.7E-16 $\pm$ 130%	3.4E-15 $\pm$ 25%	332.9	1.6	32494	250	
11/26/97-12/10/97	5.1E-16 $\pm$ 110%	4.9E-15 $\pm$ 21%	335.1	1.5	30774	236	
12/10/97-12/23/97	5.5E-16 $\pm$ 110%	3.5E-15 $\pm$ 26%	315.7	1.5	28613	248	
12/23/97-12/31/97			0.0	0.0	0	250	

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

296-T-18: 244-TX SALT WELL RECEIVER & ANNULUS (X882)

01/01/97 to 12/31/97

Page 1

Warning Levels:	9.0E-12 Sr-90 μCi/ml	2.0E-10 Cs-134 μCi/ml	4.0E-10 Cs-137 μCi/ml	3.0E-14 Pu-238 μCi/ml	2.0E-14 Pu239/40 μCi/ml	2.0E-14 Am-241 μCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
On/Off Dates										
12/31/96-03/19/97	-4.0E-17 ± 999%	-5.3E-17 ± 240%	1.6E-15 ± 26%	9.6E-18 ± 90%	4.4E-17 ± 50%	7.9E-17 ± 40%	1867.8	1.6	175899	198
03/19/97-06/25/97	-4.4E-16 ± 100%	? 2.7E-18 ± 999%	3.8E-16 ± 42%	? 1.7E-17 ± 180%	6.6E-17 ± 44%	1.4E-16 ± 29%	2351.1	1.4	202332	249
06/25/97-09/17/97	-4.4E-17 ± 480%	? 2.3E-18 ± 999%	2.4E-15 ± 20%	? 2.2E-18 ± 999%	3.8E-17 ± 53%	1.3E-16 ± 35%	2016.9	1.3	158852	249
09/17/97-12/23/97	? 3.1E-16 ± 120%	? 7.5E-17 ± 140%	1.5E-15 ± 20%	-1.0E-17 ± 240%	5.6E-17 ± 36%	5.1E-17 ± 62%	2331.4	1.6	228885	247
12/23/97-12/31/97							0.0	0.0	0	250

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:43

296-W-3: 213-W WASTE COMPACTOR (W003)

01/01/97 through 12/31/97

Total System Flow: 4.9E+09 Liters = 1.7E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	3.2E-08	4.8E-15	8.4E-15
Total β	4.5E-08	6.7E-15	8.8E-15

04/21/98 12:45

296-W-3: 213-W WASTE COMPACTOR (W003)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α $\mu\text{Ci}/\text{ml}$	9.0E-12 Total β $\mu\text{Ci}/\text{ml}$	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft ³	Stack FlowRate CFM
On/Off Dates						
12/31/96-01/08/97	7.1E-15 $\pm$ 13%	2.1E-15 $\pm$ 47%	192.7	1.5	17408	1692
01/08/97-01/22/97	3.4E-15 $\pm$ 28%	7.1E-15 $\pm$ 17%	337.8	1.5	30637	1692
01/22/97-02/05/97			0.0	0.0	0	1692
02/05/97-02/19/97	8.4E-15 $\pm$ 23%	8.8E-15 $\pm$ 20%	330.9	0.9	17800	1692
02/19/97-03/05/97	4.3E-15 $\pm$ 25%	5.7E-15 $\pm$ 19%	334.0	1.6	32020	1692
03/05/97-03/12/97			0.0	0.0	0	1692
03/12/97-12/31/97			0.0	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

2.5.7 WSCF

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:44

696-W-1: WSCF LABORATORY MAIN STACK EXHAUST (W010)

01/01/97 through 12/31/97

Total System Flow: $7.4\text{E}+11$ Liters = $2.6\text{E}+10$ Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	ND	$<0.0\text{E}+00$	n/a
Total β	$5.8\text{E}-08$	$5.6\text{E}-17$	$2.1\text{E}-16$

04/21/98 12:45 696-W-1: M3CF LABORATORY MAIN STACK EXHAUST (W010) 01/01/97 to 12/31/97 Page 1

Harming Levels:	2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates	µCi/ml	µCi/ml	Hours	Flowrate	Volume	Flowrate
				CFH	ft ³	CFH
12/03/96-03/03/97	6.1E-11 ± 140%	3.4E-16 ± 250%	765	3.4	2283	50000
03/03/97-06/03/97	1.7E-11 ± 440%	2.6E-17 ± 250%	765	2.8	12804	50000
06/03/97-09/03/97	1.7E-11 ± 440%	2.6E-17 ± 250%	875	2.8	14702	50000
09/03/97-12/03/97	2.1E-11 ± 380%	2.1E-16 ± 67%	70	0	10800	50000
12/03/97-03/03/98	2.1E-11 ± 380%	1.4E-16 ± 110%	648	2.5	9616	50000
03/03/98-06/03/98	2.1E-11 ± 380%	1.4E-16 ± 110%	0	0	0	0
06/03/98-09/03/98	2.1E-11 ± 380%	1.4E-16 ± 110%	0	0	0	0
09/03/98-12/03/98	2.1E-11 ± 380%	1.4E-16 ± 110%	0	0	0	0
12/03/98-03/03/99	2.1E-11 ± 380%	1.4E-16 ± 110%	0	0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCB). ? Questionable Result - No Peak Detected. ^^ Stack Flowrate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:44

696-W-2: WSCF, NSL COUNTING ROOM EXHAUSTER (W011)

01/01/97 through 12/31/97

Total System Flow: 2.2E+10 Liters = 7.9E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	ND	<0.0E+00	n/a
Total β	1.8E-08	5.8E-16	1.2E-15

04/21/98 12:45

696-W-2: WSCF, NSL COUNTING ROOM EXHAUSTER (W011)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates	Total α	Total β	Time	FlowRate	Volume	FlowRate
	μCi/ml	μCi/ml	Hours	CFM	ft3	CFM
11/05/96-01/03/97	3.1E-17 ± 440%	2.1E-16 ± 94%	1421.6	1.0	81028	1500
01/03/97-02/04/97	3.3E-16 ± 110%	5.5E-16 ± 61%	761.5	1.0	43406	1500
02/04/97-03/12/97	1.0E-16 ± 140%	5.3E-17 ± 240%	875.0	2.0	104994	1500
03/12/97-12/02/97			0.0	0.0	0	1500
12/02/97-12/22/97	2.2E-16 ± 210%	1.2E-15 ± 49%	480.9	1.0	28852	1500
12/22/97-12/31/97			0.0	0.0	0	1500

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

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2.5.8 PFP

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:44

291-Z-1: 232-Z, 234-5, 236-Z, 242-Z PROCESS & VENT (X810, Z810)

01/01/97 through 12/31/97

Total System Flow: 4.3E+12 Liters = 1.5E+11 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.86

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Pu-238	2.2E-06	4.3E-16	5.6E-16
Pu239/40	9.3E-05	1.8E-14	2.6E-14
Pu-241	4.6E-05	9.2E-15	1.4E-14
Am-241	2.0E-05	4.0E-15	5.1E-15
Total α	1.1E-04	2.1E-14	1.1E-13
Total β	1.2E-05	2.4E-15	7.2E-15

04/21/98 12:45

291-Z-1: 232-Z, 234-S, 236-Z, 242-Z PROCESS & VENT (2810)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-12	9.0E-11	Collect	Sample	Sample	Stack
On/Off Dates	Total α μCi/ml	Total β μCi/ml	Time Hours	FlowRate CFH	Volume ft3	FlowRate CFH
12/31/96-01/16/97	2.3E-14 ± 10%	2.5E-15 ± 28%	384.5	1.6	36527	290000
01/16/97-01/29/97	1.7E-14 ± 13%	2.1E-15 ± 33%	311.0	1.7	31017	290000
01/29/97-02/12/97	7.2E-15 ± 18%	1.3E-15 ± 42%	341.0	1.7	35167	290000
02/12/97-02/26/97	6.3E-15 ± 20%	1.0E-15 ± 50%	333.6	1.7	33926	290000
02/26/97-03/12/97	9.3E-15 ± 16%	2.2E-15 ± 31%	336.8	1.7	33958	290000
03/12/97-03/26/97	1.4E-14 ± 13%	2.0E-15 ± 32%	332.0	1.7	33953	290000
03/26/97-04/07/97	5.4E-15 ± 23%	8.9E-16 ± 58%	289.5	1.6	28229	290000
04/07/97-04/23/97	8.8E-15 ± 16%	1.2E-15 ± 41%	384.0	1.7	39626	290000
04/23/97-05/07/97	1.1E-13 ± 4.6%	7.2E-15 ± 16%	334.5	1.7	34923	290000
05/07/97-05/16/97	3.6E-14 ± 10%	3.7E-15 ± 29%	219.9	1.7	22725	290000
05/16/97-05/21/97	3.7E-14 ± 14%	2.9E-15 ± 48%	116.3	1.8	12217	290000
05/21/97-06/04/97	1.2E-14 ± 15%	2.2E-15 ± 30%	336.0	1.7	34863	290000
06/04/97-06/18/97	8.5E-15 ± 17%	4.8E-15 ± 20%	336.2	1.7	34804	290000
06/18/97-07/02/97	1.3E-14 ± 14%	2.8E-15 ± 26%	344.5	1.7	34718	290000
07/02/97-07/16/97	3.9E-14 ± 8.2%	4.4E-15 ± 20%	327.9	1.9	36444	290000
07/16/97-07/30/97	5.5E-14 ± 6.7%	2.7E-15 ± 28%	333.9	1.7	33779	290000
07/30/97-08/13/97	2.8E-15 ± 32%	1.9E-15 ± 33%	340.9	1.7	34495	290000
08/13/97-08/27/97	8.6E-15 ± 17%	5.0E-15 ± 20%	333.2	1.6	32427	290000
08/27/97-09/10/97	2.4E-15 ± 31%	9.4E-16 ± 49%	335.0	1.7	34819	290000
09/10/97-09/24/97	3.6E-15 ± 26%	3.7E-16 ± 120%	336.2	1.8	35575	290000
09/24/97-10/08/97	5.4E-15 ± 21%	2.7E-15 ± 27%	338.6	1.8	35795	290000
10/08/97-10/22/97	4.4E-14 ± 7.3%	1.7E-15 ± 35%	332.0	1.8	35029	290000
10/22/97-11/05/97	6.6E-15 ± 18%	1.5E-15 ± 38%	335.7	1.8	35871	290000
11/05/97-11/19/97	1.8E-15 ± 37%	1.7E-15 ± 35%	337.6	1.7	35225	290000
11/19/97-12/03/97	8.9E-15 ± 17%	8.3E-16 ± 55%	334.0	1.7	34060	290000
12/03/97-12/17/97	3.9E-14 ± 8.0%	2.3E-15 ± 30%	338.1	1.7	33866	290000
12/17/97-12/31/97	6.3E-14 ± 6.4%	4.3E-15 ± 22%	334.4	1.7	33155	290000

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/23/98 12:45

Warning Levels:

On/Off Dates

291-Z-1: 232-Z, 234-5, 236-Z, 242-Z PROCESS & VENT (XBID)

01/01/97 to 12/31/97

Page 1

On/Off Dates	3.0E-14 µCi/ml	2.0E-14 µCi/ml	1.0E-12 µCi/ml	2.0E-14 µCi/ml	Collect Hours	Sample Flowgate CFH	Sample Flowgate f13	Stack Flowgate CFH
10/23/96-03/18/97	2.4E-16 ± 224	2.4E-14 ± 154	4.3E-15 ± 204	2.1E-15 ± 7.44	2036.9	1.7	207492	290000
06/18/97-09/24/97	4.8E-16 ± 244	1.4E-14 ± 184	1.4E-14 ± 204	3.8E-15 ± 164	2351.8	1.7	242252	290000
09/24/97-12/31/97	4.5E-16 ± 224	2.3E-14 ± 154	3.6E-15 ± 204	4.6E-15 ± 7.14	2350.7	1.7	243115	290000

SYN00L KEY: * Concentration exceeds Warning Level (factored DCB).

? Questionable Result - No Peak Detected.

-- Stack Flowgate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:44

296-Z-3: 241-Z SUMP & VESSEL VENTS (X813, Z813)

01/01/97 through 12/31/97

Total System Flow: 1.3E+10 Liters = 4.6E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.90

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Pu-238	3.1E-08	1.7E-15	2.1E-15
Pu239/40	2.7E-08	1.5E-15	2.1E-15
Pu-241	5.6E-08	3.2E-15	5.6E-15
Am-241	1.3E-08	7.3E-16	1.0E-15
Total α	6.7E-08	4.7E-15	2.6E-14
Total β	6.8E-08	4.7E-15	2.1E-14

04/21/98 12:45

296-Z-3: 241-Z SUMP & VESSEL WERTS (2813)

01/01/97 to 12/31/97

Page 1

Warning Levels:		2.0E-13	9.0E-11	Collect	Sample	Sample	Stack
On/Off Dates		Total μ l/ml	Total μ l/ml	Time	FlowRate	Volume	FlowRate
				Hours	CFH	ft3	CFH
12/31/96-01/16/97	4.9E-15 $\pm$ 21%	1.9E-15 $\pm$ 33%	384.0	1.6	37354	867	
01/16/97-01/29/97	5.1E-15 $\pm$ 25%	1.2E-14 $\pm$ 13%	311.0	1.7	31135	867	
01/29/97-02/12/97	3.1E-15 $\pm$ 28%	8.5E-15 $\pm$ 15%	340.8	1.7	34040	867	
02/12/97-02/26/97	5.8E-15 $\pm$ 20%	1.0E-14 $\pm$ 14%	324.2	1.7	34880	867	
02/26/97-03/12/97	4.1E-15 $\pm$ 24%	8.7E-16 $\pm$ 53%	336.7	1.8	35838	867	
03/12/97-03/26/97	5.6E-15 $\pm$ 26%	1.9E-15 $\pm$ 32%	331.5	1.8	35492	867	
03/26/97-04/07/97	2.6E-14 $\pm$ 10%	5.2E-15 $\pm$ 21%	290.0	1.6	28569	867	
04/07/97-04/23/97	5.3E-15 $\pm$ 21%	2.5E-15 $\pm$ 27%	384.0	1.6	37640	867	
04/23/97-05/07/97	1.8E-15 $\pm$ 38%	1.4E-15 $\pm$ 41%	334.0	1.6	32757	867	
05/07/97-05/21/97	5.2E-15 $\pm$ 22%	1.1E-14 $\pm$ 13%	336.3	1.6	32781	867	
05/21/97-06/04/97	2.7E-15 $\pm$ 33%	1.1E-14 $\pm$ 13%	336.0	1.6	33249	867	
06/04/97-06/18/97	9.1E-15 $\pm$ 17%	2.1E-14 $\pm$ 9.6%	336.2	1.6	33421	867	
06/18/97-07/02/97	2.9E-15 $\pm$ 27%	1.2E-15 $\pm$ 39%	344.6	1.9	38673	867	
07/02/97-07/16/97	4.4E-15 $\pm$ 26%	2.5E-15 $\pm$ 29%	327.9	1.7	33465	867	
07/16/97-07/30/97	2.2E-15 $\pm$ 33%	6.2E-15 $\pm$ 18%	334.8	1.7	34467	867	
07/30/97-08/13/97	5.2E-15 $\pm$ 23%	3.0E-15 $\pm$ 26%	337.1	1.7	34308	867	
08/13/97-08/27/97	2.9E-15 $\pm$ 29%	7.4E-16 $\pm$ 59%	335.8	1.7	34571	867	
08/27/97-09/10/97	4.5E-15 $\pm$ 23%	1.8E-15 $\pm$ 33%	335.5	1.7	35021	867	
09/10/97-09/11/97			0.0	0.0	0	867	
09/11/97-09/24/97	8.1E-16 $\pm$ 77%	2.2E-15 $\pm$ 32%	306.6	1.7	31980	867	
09/24/97-10/08/97	3.3E-15 $\pm$ 27%	1.4E-15 $\pm$ 41%	338.5	1.7	34778	867	
10/08/97-10/22/97	1.9E-15 $\pm$ 37%	2.5E-15 $\pm$ 29%	332.8	1.7	33981	867	
10/22/97-11/05/97	7.4E-15 $\pm$ 16%	1.5E-15 $\pm$ 38%	335.3	1.7	34539	867	
11/05/97-11/19/97	6.1E-15 $\pm$ 20%	4.8E-15 $\pm$ 20%	337.6	1.7	34791	867	
11/19/97-12/03/97	3.0E-15 $\pm$ 29%	2.4E-15 $\pm$ 30%	334.0	1.7	34015	867	
12/03/97-12/17/97	2.4E-15 $\pm$ 32%	4.4E-15 $\pm$ 21%	340.8	1.7	34409	867	
12/17/97-12/31/97	7.2E-16 $\pm$ 80%	2.0E-15 $\pm$ 32%	331.7	1.7	34713	867	

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

HNF-2665 Rev. 0

04/21/98 12:45 296-Z-3: 241-Z SHWP & WESSEL VENTS (X813) 01/01/97 to 12/31/97 Page 1

Harming Levels:	3.0E-14	2.0E-14	1.0E-12	2.0E-14	Collect	Sample	Sample	Stack
On/Off Dates	µCi/ml	µCi/ml	µCi/ml	µCi/ml	Hours	FlowRate	FlowRate	FlowRate
						CFH	ft3	CFH
02/13/98-03/18/97	2.1E-15 ± 8.3%	2.1E-15 ± 8.3%	4.0E-15 ± 30%	7.0E-16 ± 18%	1727.4	1.7	289234	867
02/13/98-03/18/97	2.1E-15 ± 8.3%	2.1E-15 ± 8.3%	4.0E-15 ± 30%	7.0E-16 ± 18%	1727.4	1.7	188943	867
06/18/97-09/24/97	2.0E-15 ± 18%	1.6E-15 ± 18%	3.5E-15 ± 30%	7.0E-16 ± 18%	2322.2	1.6	242480	867
09/24/97-12/31/97	1.3E-15 ± 14%	9.8E-16 ± 14%	? 1.0E-15 ± 50%	5.1E-16 ± 20%	2350.8	1.7	241221	867

SYN60L KEY: * Concentration exceeds Warning Level (factored DC3). ? Questionable Result - No Peak Detected. ^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/28/98

15:18

296-Z-5: 2736-ZE BUILDING EXHAUST (X913, Z913)

01/01/97 through 12/31/97

Total System Flow: 1.5E+11 Liters = 5.4E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	ND	<0.0E+00	n/a
Total β	1.8E-07	8.7E-16	1.8E-15

04/21/98 12:45

296-Z-5: 2736-28 BUILDING EXHAUST (2913)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-13 Total α μCi/ml	9.0E-11 Total β μCi/ml	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft3	Stack FlowRate CFM
On/Off Dates						
01/01/97-01/16/97			0.0	0.0	0	10359
01/16/97-01/29/97	1.6E-16 ± 330%	1.8E-15 ± 37%	311.2	1.6	30282	10359
01/29/97-03/26/97			0.0	0.0	0	10359
03/26/97-04/07/97	6.7E-17 ± 720%	6.6E-16 ± 95%	288.2	1.5	26687	10359
04/07/97-06/18/97			0.0	0.0	0	10359
06/18/97-07/02/97	3.6E-16 ± 130%	7.6E-16 ± 62%	344.8	1.6	32412	10359
07/02/97-09/24/97			0.0	0.0	0	10359
09/24/97-10/08/97	9.0E-17 ± 400%	6.8E-16 ± 68%	338.5	1.5	31215	10359
10/08/97-12/31/97			0.0	0.0	0	10359

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:44

296-Z-6: 2736-ZA BUILDING EXHAUST (Z802)

01/01/97 through 12/31/97

Total System Flow: 1.1E+11 Liters = 3.9E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	ND	<0.0E+00	n/a
Total β	5.2E-07	3.5E-15	1.4E-14

04/21/98 12:45 296-Z-6: 2756-7A BUILDING EXHAUST (2802) 01/01/97 to 12/31/97 Page 1

Warning Levels:	2.0E-14 Total µCi/ml	9.0E-12 Total µCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft ³	Stack FlowRate CFH	Stack FlowRate CFH
On/Off Dates	µCi/ml	µCi/ml	Hours	CFH	ft ³	CFH	CFH
01/01/97-01/15/97	8.3E-18 ± 993†	7.1E-16 ± 63†	0.0	0.0	0.0	7458	7458
01/16/97-01/29/97	-8.3E-18 ± 993†	7.1E-16 ± 63†	311.8	1.8	32775	7458	7458
01/29/97-03/26/97	6.2E-17 ± 720†	1.4E-14 ± 13†	0.0	0.0	0.0	7458	7458
03/27/97-03/31/97	8.2E-17 ± 720†	1.4E-14 ± 13†	28.0	0.0	28734	7458	7458
04/01/97-06/18/97	8.2E-17 ± 720†	1.4E-14 ± 13†	0.0	0.0	0.0	7458	7458
06/18/97-07/02/97	8.2E-17 ± 400†	9.1E-16 ± 53†	344.0	1.7	34344	7458	7458
07/02/97-09/24/97	-4.3E-17 ± 530†	5.1E-16 ± 96†	0.0	0.0	0.0	7458	7458
09/25/97-11/01/97	-4.3E-17 ± 530†	5.1E-16 ± 96†	338.0	0.0	35465	7458	7458
11/02/97-12/31/97	-4.3E-17 ± 530†	5.1E-16 ± 96†	0.0	0.0	0.0	7458	7458

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCB). ? Questionable Result - No Peak Detected. ** Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:45

296-Z-14: 232-Z BUILDING EXHAUST (Z814)

01/01/97 through 12/31/97

Total System Flow: $2.0\text{E}+10$ Liters = $7.0\text{E}+08$ Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	5.7E-09	2.1E-16	1.0E-15
Total β	5.1E-08	1.9E-15	4.8E-15

296-Z-14: 232-Z BUILDING EXHAUST (2014)				01/01/97 to 12/31/97		Page 1	
04/21/98 12:45				Harning Levels:			
On/Off Dates		2.0E-13 Total $\mu\text{Ci}/\text{m}^3$	9.0E-11 Total $\mu\text{Ci}/\text{m}^3$	Collect Hours	Sample Flowrate CFH	Sample Flowrate CFH	Stack Flowrate CFH
01/01/97-01/15/97	01/16/97-01/29/97	4.3E-16 $\pm$ 130X	4.9E-15 $\pm$ 20X	311.0	0.0	0.0	13395
01/29/97-03/26/97	03/27/97-04/09/97	1.0E-15 $\pm$ 75X	1.7E-15 $\pm$ 39X	288.0	0.0	0.0	13395
04/09/97-06/18/97	06/19/97-07/02/97	7.1E-17 $\pm$ 400X	1.2E-15 $\pm$ 41X	344.5	1.9	39636	13395
07/02/97-09/24/97	09/25/97-10/08/97	1.8E-16 $\pm$ 190X	1.2E-15 $\pm$ 41X	381.0	0.0	0.0	13395
10/08/97-12/31/97				381.0	0.0	40322	13395
						0	13395

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCB). ? Questionable Result - No Peak Detected.

~~ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:45

296-Z-15: 243-Z LOW LEVEL WASTE WATER TREATMENT FACI (Z915)

01/01/97 through 12/31/97

Total System Flow: 2.1E+09 Liters = 7.4E+07 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	4.6E-11	1.6E-17	3.2E-16
Total β	5.0E-10	1.8E-16	4.8E-16

04/21/98 12:45

296-Z-15: 243-Z LOW LEVEL WASTE WATER TREATMENT FACI (Z915)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α $\mu\text{Ci}/\text{ml}$	9.0E-12 Total β $\mu\text{Ci}/\text{ml}$	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft ³	Stack FlowRate CFM
On/Off Dates						
12/02/96-01/02/97	3.2E-16 $\pm$ 59%	4.8E-16 $\pm$ 35%	747.0	2.7	122758	1600
01/02/97-12/01/97			0.0	0.0	0	0
12/01/97-01/05/98	4.0E-17 $\pm$ 240%	1.6E-16 $\pm$ 64%	841.9	2.7	138859	1600

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

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HNF-2665 Rev. 0

2.6 300 Area

ENVIRONMENTAL RELEASE SUMMARY REPORT

05/31/98

10:14

309-PRTR: 309-PRTR (F030)

01/01/97 through 12/31/97

Total System Flow: 7.2E+10 Liters = 2.6E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	ND	<7.1E-17	n/a
Total β	ND	<2.3E-16	n/a

01/01/97 to 12/31/97

309-PRTR: 309-PRTR (F030)

05/31/98 10:16

Warning Levels:

On/Off Dates	Total g	µCi/m	Total g	µCi/m	Collect	Sample	Sample	Volume	FlowRate	Stack
					Time	FlowRate	Volume	FlowRate	FlowRate	FlowRate
					Hours	CFM	ft3	CFM	CFM	CFM
01/01/97-01/03/97										
01/03/97-01/13/97	<1.1E-16		<3.9E-16				81240			6000
01/13/97-02/10/97							80220			6000
02/10/97-03/10/97	<9.6E-17						80700			6000
03/10/97-04/07/97	<1.3E-16		<4.0E-16							6000
04/07/97-05/30/97										6000
05/30/97-05/31/97										6000
05/31/97-06/20/97										6000
06/20/97-06/21/97										6000
06/21/97-10/02/97										6000
10/02/97-11/07/97										6000
11/07/97-11/10/97										6000
11/10/97-11/20/97										6000
11/20/97-12/02/97										6000
12/02/97-12/31/97										6000

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:58

EP32401S: 324 BUILDING STACK: Particulate (F025, F028, F603)

01/01/97 through 12/31/97

Total System Flow: 1.0E+12 Liters = 3.6E+10 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.86
Others: 0.87

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
H-3 (HTO)	1.3E-01	1.1E-10	2.1E-10
Sr-90	3.9E-08	3.3E-17	1.2E-16
Cs-137	ND	<0.0E+00	n/a
Pu-238	ND	<0.0E+00	n/a
Pu239/40	ND	<0.0E+00	n/a
Am-241	ND	-3.8E-18	-8.2E-18
Total α	ND	<0.0E+00	n/a
Total β	1.6E-07	1.3E-16	1.2E-15

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:58

EP32401S: 324 BUILDING STACK: H-3 (HT) (F031)

01/01/97 through 12/31/97

Total System Flow: $1.0\text{E}+12$ Liters = $3.6\text{E}+10$ Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.87

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
H-3 (HT)	4.9E-01	4.2E-10	8.5E-10

Warning Levels:		2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates:		Total α $\mu\text{Ci}/\text{m}^3$	Total β $\mu\text{Ci}/\text{m}^3$	Time Hours	FlowRate CFM	Volume ft3	FlowRate CFM
12/30/96-01/14/97	-2.2E-17 $\pm$ 392%	7.8E-16 $\pm$ 89%	360.0	2.3	49440	68195	
01/14/97-01/29/97	-1.9E-17 $\pm$ 426%	9.2E-16 $\pm$ 79%	355.0	2.3	48753	68195	
01/29/97-02/11/97	6.5E-17 $\pm$ 351%	4.0E-16 $\pm$ 168%	318.0	2.3	42930	68195	
02/11/97-02/25/97	-2.2E-17 $\pm$ 408%	2.7E-16 $\pm$ 229%	334.0	2.3	45955	68195	
02/25/97-03/12/97	1.5E-16 $\pm$ 165%	-2.1E-16 $\pm$ 221%	364.5	2.3	50146	68195	
03/12/97-03/25/97	6.1E-17 $\pm$ 395%	4.4E-16 $\pm$ 163%	302.5	2.3	41319	68195	
03/25/97-04/08/97	-9.8E-18 $\pm$ 633%	1.5E-16 $\pm$ 447%	339.0	2.1	43083	68195	
04/08/97-04/23/97	-1.8E-17 $\pm$ 447%	2.5E-16 $\pm$ 255%	364.0	2.1	46615	68195	
04/23/97-05/06/97	-5.2E-17 $\pm$ 283%	2.6E-16 $\pm$ 270%	304.5	2.2	40258	69195	
05/06/97-05/21/97	-9.1E-18 $\pm$ 633%	4.9E-16 $\pm$ 139%	360.0	2.2	46615	68195	
05/21/97-06/06/97	-8.5E-18 $\pm$ 633%	8.8E-17 $\pm$ 582%	389.5	2.1	49793	68195	
06/06/97-06/18/97	-2.3E-17 $\pm$ 447%	4.3E-16 $\pm$ 175%	294.5	2.1	35373	68195	
06/18/97-07/01/97	-3.2E-17 $\pm$ 365%	3.9E-16 $\pm$ 194%	311.5	2.1	39905	68195	
07/01/97-07/15/97	-2.0E-17 $\pm$ 447%	-9.6E-17 $\pm$ 602%	331.5	2.1	42730	68195	
07/15/97-07/30/97	4.6E-17 $\pm$ 490%	-7.6E-17 $\pm$ 752%	367.0	2.1	45555	68195	
07/30/97-08/13/97	-4.9E-17 $\pm$ 283%	1.2E-15 $\pm$ 71%	335.0	2.1	43083	68195	
08/13/97-08/27/97	-8.9E-17 $\pm$ 211%	5.0E-16 $\pm$ 145%	332.5	2.1	42730	68195	
08/27/97-09/11/97	-1.8E-17 $\pm$ 447%	7.1E-16 $\pm$ 105%	363.0	2.1	45908	68195	
09/11/97-09/26/97	7.4E-17 $\pm$ 274%	9.6E-17 $\pm$ 640%	360.5	2.1	45555	68195	
09/26/97-10/15/97	-2.9E-17 $\pm$ 316%	5.9E-17 $\pm$ 791%	457.3	2.1	58268	68195	
10/15/97-10/29/97	9.0E-17 $\pm$ 233%	4.9E-16 $\pm$ 156%	330.5	2.1	42024	68195	
10/29/97-11/21/97	9.9E-17 $\pm$ 165%	3.2E-16 $\pm$ 130%	556.3	2.3	76985	68195	
11/21/97-12/05/97	-2.7E-17 $\pm$ 365%	2.3E-16 $\pm$ 280%	334.0	2.3	46261	68195	
12/05/97-12/22/97	6.8E-17 $\pm$ 233%	4.7E-16 $\pm$ 121%	405.0	2.3	55796	68195	
12/22/97-01/06/98	-8.4E-18 $\pm$ 633%	7.7E-16 $\pm$ 85%	360.5	2.3	50146	68195	

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/88 12:45

EP324015: 324 BUILDING STACK: H-3 (HTO) (F028)

01/01/97 to 12/31/97

Page 1

Harming Levels:		EP324015: 324 BUILDING STACK: H-3 (HTO) (F028)		01/01/97 to 12/31/97	
On/Off Dates	1.0E-07 H-3 μCi/ml	Collect Time Hours	Sample Volume CFH	Sample Volume ft3	Stack Flowrate CFH
12/11/96-01/10/97	6.0E-11 ± 9.6E-12	721.0	0.0	318	68195
01/10/97-02/10/97	6.0E-11 ± 1.1E-11	742.0	0.0	301	68195
02/10/97-03/13/97	9.1E-11 ± 8.4E-12	744.5	0.0	315	68195
03/13/97-04/14/97	7.0E-11 ± 6.8E-12	740.0	0.0	321	68195
04/14/97-05/15/97	7.8E-11 ± 9.7E-12	745.0	0.0	327	68195
05/15/97-06/16/97	1.0E-10 ± 8.5E-12	767.0	0.0	340	68195
06/16/97-07/17/97	8.9E-11 ± 9.9E-12	739.5	0.0	326	68195
07/17/97-08/18/97	1.0E-10 ± 8.5E-12	740.0	0.0	327	68195
08/22/97-09/26/97	1.9E-10 ± 6.1E-11	842.0	0.0	363	68195
09/26/97-11/03/97	1.3E-10 ± 7.9E-11	911.5	0.0	391	68195
11/03/97-12/09/97	9.0E-11 ± 8.2E-12	885.0	0.0	370	68195
12/09/97-01/03/98	9.0E-11 ± 8.1E-12	885.0	0.0	381	68195

SN50L KEY: * Concentration exceeds Warning Level (factored DCS).
? Questionable Result - No Peak Detected.
^^ Stack Flowrate of previous Sample used.

04/21/98 12:45

EP32401: 324 BUILDING STACK: H-3 (HT) (F031)

01/01/97 to 12/31/97

Page 1

Warning Levels:		1.0E-07	Collect	Sample	Sample	Stack
On/Off Dates		H-3 μCi/ml	Time Hours	FlowRate CFM	Volume ft3	FlowRate CFM
12/11/96-01/10/97	3.4E-10 ± 3.7%	721.0	0.0	318	68195	
01/10/97-02/10/97	4.8E-10 ± 2.9%	742.0	0.0	301	68195	
02/10/97-03/13/97	2.7E-10 ± 3.5%	744.5	0.0	315	68195	
03/13/97-04/14/97	1.7E-10 ± 3.4%	770.0	0.0	321	68195	
04/14/97-05/15/97	1.5E-10 ± 3.4%	743.5	0.0	317	68195	
05/15/97-06/16/97	2.7E-10 ± 3.1%	767.0	0.0	340	68195	
06/16/97-07/17/97	2.0E-10 ± 3.1%	739.5	0.0	326	68195	
07/17/97-08/22/97	5.7E-10 ± 2.8%	868.0	0.0	367	68195	
08/22/97-09/26/97	7.3E-10 ± 2.7%	842.0	0.0	363	68195	
09/26/97-11/03/97	5.9E-10 ± 2.6%	911.5	0.0	391	68195	
11/03/97-12/09/97	3.5E-10 ± 3.2%	865.0	0.0	370	68195	
12/09/97-01/15/98	8.5E-10 ± 3.0%	882.5	0.0	381	68195	

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

EP32401S: 324 BUILDING STACK: Composite (F603)

01/01/97 to 12/31/97

Page 1

Warning Levels:		9.0E-12 Sr-90	4.0E-10 Cs-137	3.0E-14 Pu-238	2.0E-14 Pu239/40	2.0E-14 Am-241	Collect Time	Sample FlowRate	Sample Volume	Stack FlowRate
On/Off Dates		$\mu\text{Ci}/\text{m}^3$	$\mu\text{Ci}/\text{m}^3$	$\mu\text{Ci}/\text{m}^3$	$\mu\text{Ci}/\text{m}^3$	$\mu\text{Ci}/\text{m}^3$	Hours	CFH	ft3	CFH
12/30/96-06/18/97		3.5E-17 $\pm$ 208%	5.4E-17 $\pm$ 155%	-1.3E-18 $\pm$ 374%	0.0E+00 $\pm$ 495%	-8.2E-18 $\pm$ 94%	4078.0	2.2	540311	68195
06/18/97-09/26/97		1.9E-18 $\pm$ 999%	-2.8E-17 $\pm$ 56%	-1.2E-18 $\pm$ 529%	1.2E-18 $\pm$ 973%	5.1E-18 $\pm$ 118%	2401.0	2.1	306529	68195
09/26/97-12/22/97		1.2E-16 $\pm$ 36%	-2.4E-18 $\pm$ 999%	6.0E-18 $\pm$ 155%	2.4E-18 $\pm$ 572%	1.3E-18 $\pm$ 999%	2083.5	2.2	278631	68195

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/21/98

12:45

EP32701S: 327 Building (F026, F029, F604)

01/01/97 through 12/31/97

Total System Flow: 7.3E+11 Liters = 2.6E+10 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.86
Others: 0.87

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
H-3 (HTO)	1.1E-01	1.4E-10	2.7E-10
Sr-90	2.3E-07	2.7E-16	3.4E-16
Cs-137	7.5E-07	8.8E-16	9.8E-16
Pu-238	9.5E-10	1.1E-18	4.1E-18
Pu239/40	6.7E-09	7.9E-18	2.0E-17
Am-241	6.4E-09	7.6E-18	1.6E-17
Total α	8.1E-08	9.6E-17	5.2E-16
Total β	2.3E-06	2.7E-15	5.5E-15

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/21/98

12:45

EP32701S: 327 BUILDING STACK: H-3 (HT) (F032)

01/01/97 through 12/31/97

Total System Flow: 7.3E+11 Liters = 2.6E+10 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.87

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
H-3 (HT)	4.6E-02	5.5E-11	3.1E-10

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/21/98

12:45

EP32701-S: EP-327-01-S STACK: Rn-220 & Rn-222 (Q900)

01/01/97 through 12/31/97

Total System Flow: 7.3E+11 Liters = 2.6E+10 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

1.00

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Rn-220	5.0E+01	6.8E-08	8.3E-08
Ra-222	1.6E+00	2.2E-09	2.8E-09

04/21/98 12:45

EP327015: 327 Building (F026)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α $\mu\text{Ci}/\text{m}^3$	9.0E-12 Total β $\mu\text{Ci}/\text{m}^3$	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft ³	Stack FlowRate CFH
On/Off Dates						
12/30/96-01/14/97	3.5E-17 $\pm$ 303%	3.0E-15 $\pm$ 25%	362.0	4.1	86992	49116
01/14/97-01/29/97	3.8E-16 $\pm$ 74%	5.0E-15 $\pm$ 20%	355.0	4.1	87226	49116
01/29/97-02/11/97	3.1E-16 $\pm$ 89%	5.5E-15 $\pm$ 20%	315.0	4.3	81270	49116
02/11/97-02/19/97	3.0E-17 $\pm$ 343%	2.8E-15 $\pm$ 37%	189.0	4.2	47061	49116
02/19/97-02/25/97	8.8E-17 $\pm$ 293%	3.5E-15 $\pm$ 38%	143.0	4.2	36373	49116
02/25/97-03/12/97	3.7E-17 $\pm$ 274%	2.1E-15 $\pm$ 30%	367.0	4.2	91467	49116
03/12/97-03/24/97	2.7E-17 $\pm$ 316%	3.0E-15 $\pm$ 31%	287.0	3.6	62155	49116
03/24/97-04/06/97	9.1E-17 $\pm$ 153%	2.0E-15 $\pm$ 31%	358.0	4.1	87933	49116
04/06/97-04/18/97	2.0E-16 $\pm$ 128%	2.7E-15 $\pm$ 34%	241.0	4.0	57915	49116
04/18/97-04/23/97	5.8E-17 $\pm$ 274%	1.2E-15 $\pm$ 57%	122.0	4.3	31112	49116
04/23/97-05/08/97	2.4E-17 $\pm$ 490%	2.4E-15 $\pm$ 29%	352.0	4.1	87579	49116
05/08/97-05/21/97	3.7E-16 $\pm$ 78%	3.7E-15 $\pm$ 24%	317.5	4.1	78944	49116
05/21/97-06/06/97	1.3E-16 $\pm$ 122%	2.2E-15 $\pm$ 29%	385.5	4.0	93583	49116
06/06/97-06/18/97	1.1E-16 $\pm$ 165%	1.8E-15 $\pm$ 38%	285.0	4.1	70275	49116
06/18/97-07/01/97	3.9E-17 $\pm$ 326%	1.5E-15 $\pm$ 40%	312.0	4.1	75926	49116
07/01/97-07/15/97	1.1E-17 $\pm$ 447%	1.4E-15 $\pm$ 41%	332.5	4.0	79810	49116
07/15/97-07/30/97	6.9E-17 $\pm$ 211%	1.8E-15 $\pm$ 33%	364.5	4.2	91817	49116
07/30/97-08/13/97	2.5E-17 $\pm$ 490%	2.4E-15 $\pm$ 30%	336.0	4.2	83695	49116
08/13/97-08/27/97	5.5E-17 $\pm$ 310%	1.3E-15 $\pm$ 43%	336.5	4.2	84754	49116
08/27/97-09/11/97	8.5E-17 $\pm$ 165%	2.5E-15 $\pm$ 28%	360.0	4.2	89698	49116
09/11/97-09/26/97	3.8E-17 $\pm$ 274%	2.0E-15 $\pm$ 31%	358.5	4.2	89345	49116
09/26/97-10/15/97	1.8E-16 $\pm$ 101%	1.5E-15 $\pm$ 33%	459.0	4.0	110101	49116
10/15/97-10/29/97	5.2E-16 $\pm$ 65%	2.9E-15 $\pm$ 27%	333.7	4.0	80517	49116
10/29/97-11/21/97	3.0E-16 $\pm$ 66%	4.7E-15 $\pm$ 17%	552.0	4.1	137373	49116
11/21/97-12/05/97	1.4E-16 $\pm$ 135%	2.6E-15 $\pm$ 29%	335.0	4.1	82639	49116
12/05/97-12/22/97	3.7E-16 $\pm$ 38%	3.4E-15 $\pm$ 22%	404.5	4.1	106646	49116
12/22/97-01/06/98	1.4E-16 $\pm$ 122%	1.8E-15 $\pm$ 33%	360.0	4.1	88639	49116

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

HNF-2665 Rev. 0

04/21/98 12:45

EP32701S: 327 BUILDING AIR, STACK: H-3 (HTO) (F029)

01/01/97 to 12/31/97

Page 1

Warning Levels:		1.0E-07	Collect	Sample	Sample	Stack
		H-3	Time	FlowRate	Volume	FlowRate
On/Off Dates		$\mu\text{Ci}/\text{m}^3$	Hours	CFM	ft ³	CFM
12/27/96-01/30/97		1.2E-10 ± 6.3%	816.5	0.0	334	49116
01/30/97-02/27/97		3.8E-11 ± 15%	673.2	0.0	275	49116
02/27/97-03/27/97		7.7E-11 ± 9.9%	672.0	0.0	274	49116
03/27/97-04/24/97		5.3E-11 ± 9.0%	672.0	0.0	278	49116
04/24/97-05/27/97		7.7E-11 ± 8.6%	720.0	0.0	301	49116
05/27/97-06/27/97		1.1E-10 ± 8.3%	739.5	0.0	311	49116
06/27/97-07/30/97		1.2E-10 ± 8.0%	796.5	0.0	331	49116
07/30/97-09/02/97		2.1E-10 ± 6.8%	816.0	0.0	345	49116
09/02/97-10/06/97		2.7E-10 ± 5.5%	814.5	0.0	330	49116
10/06/97-11/10/97		1.8E-10 ± 5.9%	841.5	0.0	349	49116
11/10/97-12/15/97		1.6E-10 ± 5.5%	839.0	0.0	340	49116
12/15/97-01/19/98		1.9E-10 ± 5.0%	840.0	0.0	367	49116

SYM00L KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

EP32701: 327 BUILDING STACK: H-3 (HT) (F032)

01/01/97 to 12/31/97

Page 1

Warning Levels:	1.0E-07 H-3 μCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
On/Off Dates					
12/27/96-01/30/97	1.9E-11 ± 141	816.5	0.0	334	49116
01/30/97-02/27/97	2.1E-10 ± 5.42	673.2	0.0	275	49116
02/27/97-03/27/97	8.3E-12 ± 302	672.0	0.0	274	49116
03/27/97-04/24/97	5.2E-12 ± 302	672.0	0.0	278	49116
04/24/97-05/27/97	5.7E-12 ± 202	720.0	0.0	301	49116
05/27/97-06/27/97	6.3E-12 ± 172	739.5	0.0	311	49116
06/27/97-07/30/97	4.7E-12 ± 181	796.5	0.0	331	49116
07/30/97-09/02/97	1.7E-11 ± 142	816.0	0.0	345	49116
09/02/97-10/06/97	3.0E-11 ± 102	814.5	0.0	330	49116
10/06/97-11/10/97	4.5E-11 ± 7.42	841.5	0.0	349	49116
11/10/97-12/15/97	1.3E-10 ± 4.22	839.0	0.0	340	49116
12/15/97-01/19/98	3.1E-10 ± 3.22	840.0	0.0	367	49116

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

EP32701S: 327 BUILDING AIR, STACK: Composite (F604)

01/01/97 to 12/31/97

Page 1

Warning Levels:	9.0E-12 Sr-90 μCi/ml	4.0E-10 Cs-137 μCi/ml	3.0E-14 Pu-238 μCi/ml	2.0E-14 Pu239/40 μCi/ml	2.0E-14 Am-241 μCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
On/Off Dates									
12/30/96-06/18/97	3.4E-16 ± 12%	9.8E-16 ± 7.0%	-3.6E-19 ± 721%	5.3E-18 ± 94%	6.8E-18 ± 66%	4089.0	2.2	540311	49116
06/18/97-09/26/97	1.6E-16 ± 25%	6.7E-16 ± 14%	4.1E-18 ± 95%	2.0E-17 ± 36%	1.6E-17 ± 54%	2400.0	2.1	306176	49116
09/26/97-12/22/97	2.5E-16 ± 15%	9.3E-16 ± 12%	5.3E-18 ± 117%	6.6E-19 ± 663%	6.8E-18 ± 139%	2085.0	2.2	278631	49116

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

01/01/97 to 12/31/97

EP32701-S: EP-327-01-S STACK: Rn-220 & Rn-222 (Q900)

04/21/98 12:45

[illegible]

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:59

EP32702V: 327 BUILDING, DECON. CELL ROOF VENT: Part. (P027)

01/01/97 through 12/31/97

Total System Flow: 1.1E+10 Liters = 3.9E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:

0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Co-60	8.3E-10	5.5E-17	2.1E-16
Sr-90	ND	<0.0E+00	n/a
Cs-137	2.3E-09	1.5E-16	3.5E-16
Pu-238	ND	<0.0E+00	n/a
Pu239/40	ND	<0.0E+00	n/a
Am-241	1.1E-11	7.3E-19	2.7E-18
Total α	ND	<0.0E+00	n/a
Total β	5.2E-09	4.1E-16	1.6E-15

Warning Levels:		2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
On/Off Dates		Total α	Total β	Time	FlowRate	Volume	FlowRate
		μCi/ml	μCi/ml	Hours	CFH	ft3	CFH
12/30/96-01/14/97	-1.0E-17 ± 392X	6.7E-16 ± 57X	362.0	4.8	104177	742	
01/14/97-01/29/97	-9.2E-18 ± 426X	1.1E-15 ± 43X	355.0	4.7	100999	742	
01/29/97-02/11/97	5.9E-17 ± 351X	1.6E-15 ± 54X	315.0	4.8	89775	742	
02/11/97-02/25/97	7.7E-17 ± 170X	3.3E-16 ± 103X	333.0	4.8	96055	742	
02/25/97-03/12/97	-8.2E-18 ± 447X	2.3E-16 ± 128X	366.0	4.7	103121	742	
03/12/97-03/25/97	-2.0E-17 ± 316X	3.2E-16 ± 114X	306.0	4.7	85170	742	
03/25/97-04/08/97	-4.4E-18 ± 633X	1.3E-16 ± 235X	339.0	4.8	96761	742	
04/08/97-04/23/97	2.4E-16 ± 165X	5.8E-16 ± 173X	363.0	4.6	100293	742	
04/23/97-05/07/97	2.2E-17 ± 490X	2.1E-16 ± 155X	330.0	4.8	94995	742	
05/07/97-05/21/97	8.2E-17 ± 153X	4.6E-16 ± 90X	339.5	4.8	97821	742	
05/21/97-06/06/97	-3.8E-18 ± 633X	4.6E-16 ± 69X	385.5	4.8	110887	742	
06/06/97-06/18/97	-1.0E-17 ± 447X	3.4E-16 ± 107X	285.0	4.9	82989	742	
06/18/97-07/01/97	-1.4E-17 ± 365X	2.1E-16 ± 157X	312.0	4.8	90758	742	
07/01/97-07/15/97	3.6E-17 ± 274X	9.0E-17 ± 326X	332.0	4.8	94642	742	
07/15/97-07/30/97	2.0E-17 ± 490X	5.0E-16 ± 71X	365.0	4.9	107356	742	
07/30/97-08/13/97	-2.2E-17 ± 283X	4.8E-16 ± 78X	336.0	4.8	96761	742	
08/13/97-08/27/97	-3.8E-17 ± 211X	4.1E-16 ± 87X	336.5	4.9	98880	742	
08/27/97-09/11/97	-8.1E-18 ± 447X	4.9E-16 ± 73X	360.0	4.9	104883	742	
09/11/97-09/26/97	-8.1E-18 ± 447X	3.1E-16 ± 105X	358.5	4.8	104177	742	
09/26/97-10/15/97	-1.3E-17 ± 316X	4.2E-16 ± 67X	459.0	4.9	134401	742	
10/15/97-10/29/97	3.9E-17 ± 233X	6.0E-16 ± 67X	333.7	4.9	97467	742	
10/29/97-11/21/97	2.0E-17 ± 274X	1.1E-15 ± 31X	552.0	5.0	165624	742	
11/21/97-12/05/97	7.1E-17 ± 179X	7.0E-16 ± 58X	335.0	5.0	100646	742	
12/05/97-12/22/97	1.0E-16 ± 122X	5.3E-16 ± 61X	405.0	5.0	121481	742	
12/22/97-01/06/98	-4.0E-18 ± 633X	4.9E-16 ± 69X	359.7	4.9	105590	742	

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

EP32702V: 327 BUILDING, DECON. CELL ROOF VENT: Comp. (F605)

01/01/97 to 12/31/97

Page 1

Warning Levels:	8.0E-11 Co-60 μCi/ml	9.0E-12 Sr-90 μCi/ml	4.0E-10 Cs-137 μCi/ml	3.0E-14 Pu-238 μCi/ml	2.0E-14 Pu239/40 μCi/ml	2.0E-14 Am-241 μCi/ml	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft3	Stack FlowRate CFM
On/Off Dates	μCi/ml	μCi/ml	μCi/ml	μCi/ml	μCi/ml	μCi/ml				
12/30/96-06/18/97 ?	3.3E-17 ± 142%	3.6E-17 ± 109%	2.0E-17 ± 234%	-2.9E-18 ± 165%	0.0E+00 ± 999%	1.4E-19 ± 999%	4080.0	2.2	540311	742
06/18/97-09/26/97	-2.7E-17 ± 282%	1.5E-17 ± 242%	2.2E-16 ± 32%	-2.6E-18 ± 258%	8.5E-19 ± 312%	2.7E-18 ± 80%	2400.0	2.1	305176	742
09/26/97-12/22/97	2.1E-16 ± 46%	1.3E-17 ± 191%	3.5E-16 ± 28%	2.1E-18 ± 333%	4.2E-18 ± 115%	1.0E-17 ± 118%	2085.0	2.2	278631	742

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:57

340-B-BLD: 340 B BUILDING (F008)

01/01/97 through 12/31/97

Total System Flow: $9.3E+08$ Liters = $3.3E+07$ Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	ND	$<1.4E-15$	n/a
Total β	ND	$<7.5E-15$	n/a

04/21/98 12:45

340-B-BLD: 340 B BUILDING (F008)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α μCi/ml	9.0E-12 Total β μCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
On/Off Dates						
01/01/97-01/08/97			0.0	0.0	0	0
01/09/97	<1.3E-13	<5.4E-13	0.5	2.0	60	1822
01/09/97-02/13/97			848.2	0.0	0	0
02/13/97-02/21/97	<1.8E-15	<1.0E-14	26.2	2.0	3149	1822
02/21/97-04/15/97			1265.5	0.0	0	0
04/15/97-04/17/97	1.8E-15 ± 326%	-7.7E-16 ± 999%	53.3	2.0	6391	1822
04/17/97-05/18/97			0.0	0.0	0	0
05/19/97	1.4E-14 ± 633%	-1.0E-14 ± 999%	1.0	2.0	120	1822
05/19/97-06/19/97			749.0	0.0	0	0
06/19/97-06/20/97 *	2.5E-14 ± 165%	-2.3E-14 ± 366%	27.6	2.0	3308	2454
06/20/97-12/31/97			4642.3	0.0	0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:57

340-DECON: 340 DECONTAMINATION FACILITY (F009)

01/01/97 through 12/31/97

Total System Flow: 1.1E+11 Liters = 3.8E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	ND	<1.7E-16	n/a
Total β	4.3E-07	2.9E-15	6.9E-15

340-DECON: 340 DECONTAMINATION FACILITY (F009)										01/01/97 to 12/31/97	Page 1																																																																																																												
04/21/98 12:45																																																																																																																							
Warning Levels:																																																																																																																							
Do/Off Dates		0.05-12 µCi/ml		2.0E-14 µCi/ml		9.0E-12 µCi/ml		Collect Hours		Sample Volume f13	Stack Flowrate CFM																																																																																																												
<table border="1"> <thead> <tr> <th colspan="2">DO/DATE</th> <th colspan="2">0.05-12 µCi/ml</th> <th colspan="2">2.0E-14 µCi/ml</th> <th colspan="2">9.0E-12 µCi/ml</th> <th colspan="2">Collect Hours</th> <th>Sample Volume f13</th> <th>Stack Flowrate CFM</th> </tr> </thead> <tbody> <tr> <td>12/31/96</td> <td>01/07/97</td> <td>1.0E-15</td> <td>0.0</td> <td>2.0</td> <td>20039</td> <td>7222</td> <td>7222</td> <td>2.0</td> <td>20039</td> <td>7222</td> <td>7222</td> </tr> <tr> <td>01/07/97</td> <td>04/01/97</td> <td>3.9E-15</td> <td>169.8</td> <td>2.0</td> <td>20370</td> <td>7222</td> <td>7222</td> <td>2.0</td> <td>20370</td> <td>7222</td> <td>7222</td> </tr> <tr> <td>03/25/97</td> <td>04/01/97</td> <td><3.8E-16</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>7222</td> <td>7222</td> <td>0.0</td> <td>0.0</td> <td>7222</td> <td>7222</td> </tr> <tr> <td>04/01/97</td> <td>06/24/97</td> <td>1.7E-16 ± 274%</td> <td>1.7E-16 ± 107%</td> <td>0.0</td> <td>0.0</td> <td>20058</td> <td>7222</td> <td>2.0</td> <td>20058</td> <td>7222</td> <td>7222</td> </tr> <tr> <td>06/24/97</td> <td>07/01/97</td> <td>5.9E-16 ± 128%</td> <td>4.4E-15 ± 50%</td> <td>166.7</td> <td>2.0</td> <td>20093</td> <td>7222</td> <td>2.0</td> <td>20093</td> <td>7222</td> <td>7222</td> </tr> <tr> <td>09/30/97</td> <td>10/07/97</td> <td>2.0E-16 ± 153%</td> <td>6.9E-15 ± 24%</td> <td>338.3</td> <td>2.0</td> <td>40611</td> <td>7222</td> <td>2.0</td> <td>40611</td> <td>7222</td> <td>7222</td> </tr> <tr> <td>10/07/97</td> <td>12/23/97</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>12/23/97</td> <td>07/06/98</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>												DO/DATE		0.05-12 µCi/ml		2.0E-14 µCi/ml		9.0E-12 µCi/ml		Collect Hours		Sample Volume f13	Stack Flowrate CFM	12/31/96	01/07/97	1.0E-15	0.0	2.0	20039	7222	7222	2.0	20039	7222	7222	01/07/97	04/01/97	3.9E-15	169.8	2.0	20370	7222	7222	2.0	20370	7222	7222	03/25/97	04/01/97	<3.8E-16	0.0	0.0	0.0	7222	7222	0.0	0.0	7222	7222	04/01/97	06/24/97	1.7E-16 ± 274%	1.7E-16 ± 107%	0.0	0.0	20058	7222	2.0	20058	7222	7222	06/24/97	07/01/97	5.9E-16 ± 128%	4.4E-15 ± 50%	166.7	2.0	20093	7222	2.0	20093	7222	7222	09/30/97	10/07/97	2.0E-16 ± 153%	6.9E-15 ± 24%	338.3	2.0	40611	7222	2.0	40611	7222	7222	10/07/97	12/23/97											12/23/97	07/06/98										
DO/DATE		0.05-12 µCi/ml		2.0E-14 µCi/ml		9.0E-12 µCi/ml		Collect Hours		Sample Volume f13	Stack Flowrate CFM																																																																																																												
12/31/96	01/07/97	1.0E-15	0.0	2.0	20039	7222	7222	2.0	20039	7222	7222																																																																																																												
01/07/97	04/01/97	3.9E-15	169.8	2.0	20370	7222	7222	2.0	20370	7222	7222																																																																																																												
03/25/97	04/01/97	<3.8E-16	0.0	0.0	0.0	7222	7222	0.0	0.0	7222	7222																																																																																																												
04/01/97	06/24/97	1.7E-16 ± 274%	1.7E-16 ± 107%	0.0	0.0	20058	7222	2.0	20058	7222	7222																																																																																																												
06/24/97	07/01/97	5.9E-16 ± 128%	4.4E-15 ± 50%	166.7	2.0	20093	7222	2.0	20093	7222	7222																																																																																																												
09/30/97	10/07/97	2.0E-16 ± 153%	6.9E-15 ± 24%	338.3	2.0	40611	7222	2.0	40611	7222	7222																																																																																																												
10/07/97	12/23/97																																																																																																																						
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(ABSL KEY: * Concentration exceeds Warning Level (factored DCS). ? Questionable Result - No Peak Detected.																																																																																																																							
** Stack Flowrate of previous Sample used.																																																																																																																							

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

14:57

340-NI-EX: 340 Vault Tank Vent Exhaust (F002, F017, F602)

01/01/97 through 12/31/97

Total System Flow: 2.6E+10 Liters = 9.3E+08 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.87
 Halogens: 0.87

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
I-131	ND	<1.1E-14	n/a
Cs-137	ND	<3.3E-17	n/a
Pu-238	ND	<2.3E-18	n/a
Pu239/40	ND	<2.6E-18	n/a
Am-241	ND	<3.7E-18	n/a
Total α	1.2E-09	3.9E-17	1.5E-16
Total β	6.9E-09	2.3E-16	7.7E-16

01/01/97 to 12/31/97

340-NT-EX: 340 Vault Tank Vent Exhaust (F002)

04/21/98 12:45

Warning Levels: 2.0E-14

On/off Dates

[illegible]

[illegible]

04/21/98 12:45

340-NT-EX: 340 Vault Tank Exhaust Quarterly Composite (F602)

01/01/97 to 12/31/97

Page 1

Warning Levels:	4.0E-10 Cs-137 μCi/ml	3.0E-14 Pu-238 μCi/ml	2.0E-14 Pu239/40 μCi/ml	2.0E-14 Am-241 μCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft3	Stack FlowRate CFH
On/Off Dates								
10/01/96-01/07/97	<9.4E-17	<9.3E-18	<5.7E-18	<1.3E-17	2352.0	3.1	437914	1762
01/07/97-04/01/97	<1.4E-16	<9.4E-18	<1.1E-17	<1.5E-17	2016.6	3.1	374346	1762
04/01/97-06/24/97	8.8E-17 ± 136%	1.1E-18 ± 825%	3.4E-18 ± 333%	1.2E-18 ± 825%	2015.0	3.1	374333	1762
06/24/97-09/30/97	5.4E-17 ± 202%	4.7E-18 ± 230%	1.9E-18 ± 548%	1.7E-18 ± 383%	2352.8	3.1	437899	1762
09/30/97-01/06/98	6.7E-17 ± 128%	1.3E-17 ± 101%	2.9E-18 ± 320%	1.0E-18 >>999%	2348.7	3.0	423775	1762

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

2.7 400 Area

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

15:04

437-1-61: MASF 437-1-61 (F019)

01/01/97 through 12/31/97

Total System Flow: 2.3E+11 Liters = 8.0E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	ND	<0.0E+00	n/a
Total β	9.0E-08	2.9E-16	1.3E-15

05/04/98 15:06

01/01/97 to 12/31/97

Page 1

437-1-61: HASF 437-1-61: (F019)

Harming Levels:	2.0E-14 1.0E-14	9.0E-12 1.0E-12	Collect Time Hours	Sample Flowrate CFM	Sample Volume T1	Stack Flowrate CFM
On/Off Dates	1.0E-14 ± 2.44E-14	1.0E-15 ± 9.4E-15	0.0	0.0	32171	15236
09/03/97-09/09/97	4.1E-17 ± 863E-17	-1.9E-16 ± 420E-16	165.0	0.0	3104.0	15236
09/10/97-09/16/97	-5.3E-17 ± 316E-17	-3.5E-16 ± 220E-16	165.7	3.2	31994	15236
09/16/97-09/23/97	-5.3E-17 ± 316E-17	-3.5E-16 ± 220E-16	172.2	3.3	33954	15236
09/23/97-09/30/97	-2.5E-17 ± 447E-17	-3.4E-16 ± 220E-16	167.6	3.2	32171	15236
10/01/97-10/07/97	1.0E-16 ± 2.74E-16	1.0E-15 ± 9.4E-15	0.0	0.0	0.0	0.0
10/07/97-10/14/97	1.0E-16 ± 2.74E-16	1.0E-15 ± 9.4E-15	0.0	0.0	0.0	0.0
10/14/97-12/31/97	1.0E-16 ± 2.74E-16	1.0E-15 ± 9.4E-15	0.0	0.0	0.0	0.0

SW800L KEY: * Concentration exceeds Harming Level (factored DCS).

? Questionable Result - No Peak Detected.

^^ Stack Flowrate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

15:04

437-MN&ST: MASF 437-MN&ST (F014)

01/01/97 through 12/31/97

Total System Flow: 2.3E+11 Liters = 8.0E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.65

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	5.5E-08	1.6E-16	8.9E-16
Total β	5.9E-07	1.7E-15	4.8E-15

04/21/98 12:45

437-HN&ST: MASF 437-HN&ST (F014)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14 Total α $\mu\text{Ci}/\text{ml}$	9.0E-12 Total β $\mu\text{Ci}/\text{ml}$	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft^3	Stack FlowRate CFM
On/Off Dates						
12/31/96-01/07/97	<3.8E-16	<1.2E-15	167.0	2.7	27053	15271
01/07/97-01/14/97	3.2E-16	1.2E-15	168.4	2.5	25255	15271
01/14/97-01/21/97	3.0E-16	1.6E-15	167.9	2.5	25182	15271
01/21/97-01/28/97	<3.1E-16	<1.1E-15	167.4	2.5	25106	15271
01/28/97-02/04/97	2.8E-16	1.1E-15	169.0	3.2	32454	15271
02/04/97-02/11/97	<3.3E-16	<1.1E-15	167.5	2.8	28140	15271
02/11/97-02/18/97	2.6E-16	1.6E-15	167.6	2.2	22121	15271
02/18/97-02/25/97	<4.7E-16	<1.3E-15	168.0	2.2	22175	15271
02/25/97-03/04/97	<2.8E-16	<1.5E-15	169.2	2.0	20300	15271
03/04/97-03/11/97	<4.3E-16	2.5E-15	166.8	1.8	18018	15271
03/11/97-03/18/97	<5.0E-16	<1.7E-15	170.9	1.8	18458	15271
03/18/97-03/25/97	<4.6E-16	2.4E-15	165.3	1.7	16864	15271
03/25/97-04/01/97	<4.5E-16	1.9E-15	168.2	1.7	17153	15271
04/01/97-04/08/97	<6.1E-16	<1.9E-15	166.9	1.7	17017	15271
04/08/97-04/15/97	<6.5E-16	2.6E-15	168.1	1.8	17749	15271
04/15/97-04/22/97	5.6E-16 ± 135%	1.8E-15 ± 93%	168.0	2.0	20164	15271
04/22/97-04/29/97	7.1E-17 ± 365%	2.4E-15 ± 79%	167.8	1.8	17727	15271
04/29/97-05/06/97	6.0E-16 ± 128%	2.2E-15 ± 83%	167.3	2.0	19899	15271
05/06/97-05/13/97	9.1E-16 ± 104%	4.0E-15 ± 54%	168.1	1.8	18151	15271
05/13/97-05/20/97	1.1E-15 ± 104%	4.8E-15 ± 50%	167.7	1.8	17692	15271
05/20/97-05/27/97	1.0E-15 ± 108%	2.9E-15 ± 70%	168.8	1.8	17833	15271
05/27/97-06/03/97	-9.6E-17 ± 316%	2.4E-15 ± 84%	167.3	1.8	17657	15271
06/03/97-06/10/97	2.1E-16 ± 233%	3.0E-15 ± 69%	168.8	1.8	17833	15271
06/10/97-06/17/97	4.5E-16 ± 153%	3.7E-15 ± 57%	170.0	1.8	17939	15271
06/17/97-06/24/97	-4.7E-17 ± 447%	1.4E-15 ± 132%	166.0	1.8	17939	15271
06/24/97-07/01/97	-4.6E-17 ± 447%	1.9E-15 ± 91%	168.6	1.8	18222	15271
07/01/97-07/08/97	-4.5E-17 ± 135%	1.5E-15 ± 82%	169.4	2.8	28463	15271
07/08/97-07/15/97	9.8E-17 ± 326%	2.1E-15 ± 61%	166.4	3.0	29446	15271
07/15/97-07/22/97	9.2E-17 ± 326%	2.1E-15 ± 55%	166.7	3.2	31994	15271
07/22/97-07/29/97	-2.6E-17 ± 447%	9.8E-16 ± 105%	169.1	3.2	32454	15271
07/29/97-08/05/97	-2.5E-17 ± 447%	1.0E-15 ± 98%	167.4	3.4	33654	15271
08/05/97-08/12/97	-3.6E-17 ± 365%	7.4E-16 ± 122%	168.3	3.5	35314	15271
08/12/97-08/19/97	-7.0E-17 ± 283%	4.1E-16 ± 241%	167.7	3.0	30193	15271
08/19/97-08/26/97	6.3E-16 ± 95%	1.1E-15 ± 89%	168.4	3.2	32348	15271
08/26/97-09/02/97	1.3E-17 ± 999%	1.5E-15 ± 74%	169.6	3.2	32559	15271
09/02/97-09/09/97	7.6E-16 ± 86%	2.9E-15 ± 47%	167.9	3.2	32242	15271
09/09/97-09/16/97	1.8E-16 ± 253%	8.2E-16 ± 126%	166.9	3.1	31041	15271
09/16/97-09/23/97	8.2E-17 ± 385%	2.2E-15 ± 50%	166.7	3.1	31006	15271
09/23/97-09/30/97	3.7E-16 ± 128%	1.7E-15 ± 70%	172.2	3.1	32100	15271
09/30/97-10/07/97	-2.7E-17 ± 447%	7.2E-16 ± 144%	164.4	3.2	31571	15271
10/07/97-10/14/97	8.9E-16 ± 79%	2.9E-15 ± 51%	166.9	3.2	32171	15271
10/14/97-10/21/97	4.9E-16 ± 108%	2.8E-15 ± 48%	169.3	3.2	32524	15271
10/21/97-10/28/97	1.1E-16 ± 274%	1.9E-15 ± 65%	164.4	3.2	31959	15271
10/28/97-11/04/97	-6.4E-17 ± 316%	1.7E-15 ± 81%	170.2	2.5	26556	15271
11/04/97-11/11/97	1.3E-16 ± 395%	2.1E-15 ± 83%	168.3	2.0	20199	15271
11/11/97-11/18/97	1.5E-16 ± 274%	3.5E-15 ± 53%	165.5	2.3	22530	15271
11/18/97-11/25/97	-1.7E-17 ± 633%	1.2E-15 ± 113%	167.7	2.5	25179	15271
11/25/97-12/02/97	2.0E-16 ± 230%	1.8E-15 ± 74%	168.9	2.7	26887	15271
12/02/97-12/09/97	-2.5E-17 ± 447%	7.3E-16 ± 130%	168.7	3.3	33901	15271
12/09/97-12/16/97	8.5E-17 ± 326%	1.2E-15 ± 86%	166.6	3.5	34608	15271
12/16/97-12/23/97	2.0E-16 ± 176%	2.2E-16 ± 421%	142.6	3.6	30511	15271
12/22/97-12/23/97	5.5E-16 ± 314%	1.8E-15 ± 293%	25.0	3.7	5544	15271
12/23/97-12/30/97	2.4E-16 ± 155%	1.2E-15 ± 90%	167.6	3.4	33690	15271
12/30/97-12/31/97			0.0	0.0	0	15271

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

HNF-2665 Rev. 0

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

15:03

FFTF-CB-E: FFTF COMBINED EXHAUST (F011, F018, F024)

01/01/97 through 12/31/97

Total System Flow: 3.1E+11 Liters = 1.1E+10 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates:	0.73
Halogens:	0.87
Others:	0.87

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
H-3	7.9E+00	2.2E-08	2.5E-08
I-131	ND	<4.6E-15	n/a
Total α	1.1E-07	2.6E-16	1.7E-15
Total β	1.5E-06	3.5E-15	1.3E-14

04/21/98 12:45

Warning Levels:	2.0E-14 Total α $\mu\text{Ci/ml}$	9.0E-12 Total β $\mu\text{Ci/ml}$	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft ³	Stack FlowRate CFH
On/Off Dates						
12/31/96-01/07/97	<5.2E-16	1.8E-15	167.9	2.0	20149	21057
01/07/97-01/14/97	2.9E-16	2.5E-15	168.6	2.0	20230	21057
01/14/97-01/21/97	4.0E-16	9.2E-15	167.3	1.9	19066	21057
01/21/97-01/28/97	1.1E-15	2.9E-15	168.1	1.9	19160	21057
01/28/97-02/04/97	4.5E-16	2.8E-15	168.2	2.0	20180	21057
02/04/97-02/11/97	<5.0E-16	1.0E-14	168.2	1.8	18162	21057
02/11/97-02/18/97	2.9E-16	3.9E-15	167.3	2.0	20080	21057
02/18/97-02/25/97	<5.4E-16	2.8E-15	168.2	1.9	19170	21057
02/25/97-03/04/97	<2.8E-16	4.0E-15	169.4	2.0	20330	21057
03/04/97-03/11/97	<3.8E-16	3.0E-15	166.3	2.0	19950	21057
03/11/97-03/18/97	<4.5E-16	2.9E-15	169.6	2.0	20229	21057
03/18/97-03/25/97	1.1E-15	3.6E-15	168.0	1.9	19152	21057
03/25/97-04/01/97	<3.8E-16	<1.5E-15	168.3	2.0	20200	21057
04/01/97-04/08/97	5.5E-16	4.7E-15	166.9	2.0	20030	21057
04/08/97-04/15/97	<5.7E-16	1.8E-15	167.8	2.0	20139	21057
04/15/97-04/22/97	3.6E-16 $\pm$ 179%	4.7E-15 $\pm$ 46%	168.2	2.0	20199	21057
04/22/97-04/29/97	-6.3E-17 $\pm$ 365%	2.1E-15 $\pm$ 79%	167.5	2.0	20093	21057
04/29/97-05/06/97	5.9E-16 $\pm$ 128%	2.8E-15 $\pm$ 69%	168.2	2.0	20164	21057
05/06/97-05/13/97	8.6E-16 $\pm$ 104%	5.1E-15 $\pm$ 45%	168.1	1.9	19175	21057
05/13/97-05/20/97	-1.0E-16 $\pm$ 283%	1.9E-15 $\pm$ 89%	168.5	2.0	20235	21057
05/20/97-05/27/97	8.8E-17 $\pm$ 633%	2.6E-16 $\pm$ 536%	167.8	1.9	19140	21057
05/27/97-06/03/97	7.5E-16 $\pm$ 117%	4.7E-15 $\pm$ 46%	168.3	2.0	20199	21057
06/03/97-06/10/97	1.2E-15 $\pm$ 84%	4.4E-15 $\pm$ 49%	167.5	2.0	20093	21057
06/10/97-06/17/97	-2.1E-17 $\pm$ 633%	2.2E-15 $\pm$ 76%	168.7	2.0	20235	21057
06/17/97-06/24/97	-4.2E-17 $\pm$ 447%	4.4E-15 $\pm$ 32%	167.2	2.0	20058	21057
06/24/97-07/01/97	3.8E-16 $\pm$ 165%	1.9E-15 $\pm$ 85%	168.2	2.0	20164	21057
07/01/97-07/08/97	1.5E-16 $\pm$ 326%	2.0E-15 $\pm$ 87%	168.0	2.0	20164	21057
07/08/97-07/15/97	1.5E-16 $\pm$ 179%	2.2E-15 $\pm$ 79%	168.0	2.0	20164	21057
07/15/97-07/22/97	1.5E-16 $\pm$ 326%	6.6E-15 $\pm$ 36%	168.0	2.0	20164	21057
07/22/97-07/29/97	3.8E-16 $\pm$ 165%	7.0E-15 $\pm$ 36%	168.0	2.0	20164	21057
07/29/97-08/05/97	1.7E-16 $\pm$ 274%	1.2E-15 $\pm$ 128%	167.8	2.0	20129	21057
08/05/97-08/12/97	1.5E-16 $\pm$ 326%	4.7E-15 $\pm$ 46%	167.7	2.0	20129	21057
08/12/97-08/19/97	-1.4E-16 $\pm$ 283%	1.0E-15 $\pm$ 196%	168.2	1.5	15149	21057
08/19/97-08/26/97	1.1E-15 $\pm$ 95%	3.6E-15 $\pm$ 57%	167.8	1.9	19140	21057
08/26/97-09/02/97	2.3E-16 $\pm$ 310%	2.3E-15 $\pm$ 78%	168.2	2.0	20164	21057
09/02/97-09/09/97	1.8E-16 $\pm$ 274%	1.4E-15 $\pm$ 116%	168.2	1.9	19175	21057
09/09/97-09/16/97	-1.8E-16 $\pm$ 239%	2.6E-15 $\pm$ 85%	167.3	1.6	16068	21057
09/16/97-09/23/97	4.2E-16 $\pm$ 194%	2.0E-15 $\pm$ 105%	168.6	1.6	16174	21057
09/23/97-09/30/97	4.2E-17 $\pm$ 447%	2.2E-15 $\pm$ 91%	168.0	2.0	20164	21057
09/30/97-10/07/97	5.0E-16 $\pm$ 165%	4.6E-16 $\pm$ 425%	168.1	1.5	15149	21057
10/07/97-10/14/97	5.0E-16 $\pm$ 165%	-2.7E-16 $\pm$ 640%	167.6	1.5	15079	21057
10/14/97-10/21/97	-7.1E-16 $\pm$ 79%	9.9E-15 $\pm$ 33%	167.9	1.7	16633	21057
10/21/97-10/28/97	1.6E-15 $\pm$ 79%	5.9E-15 $\pm$ 43%	168.1	1.8	18257	21057
10/28/97-11/04/97	-8.8E-17 $\pm$ 316%	3.1E-15 $\pm$ 64%	167.8	1.9	19140	21057
11/04/97-11/11/97	5.4E-16 $\pm$ 142%	6.6E-15 $\pm$ 37%	168.1	2.0	20164	21057
11/11/97-11/18/97	8.0E-16 $\pm$ 168%	1.3E-14 $\pm$ 26%	167.8	2.0	20129	21057
11/18/97-11/25/97	1.9E-16 $\pm$ 233%	7.0E-16 $\pm$ 216%	168.2	2.0	20199	21057
11/25/97-12/02/97	7.1E-16 $\pm$ 126%	5.7E-15 $\pm$ 42%	168.1	2.0	20164	21057
12/02/97-12/09/97	-4.2E-17 $\pm$ 447%	5.8E-15 $\pm$ 41%	167.5	2.0	20053	21057
12/09/97-12/16/97	7.7E-16 $\pm$ 112%	7.2E-15 $\pm$ 36%	167.6	2.0	20235	21057
12/16/97-12/23/97	1.5E-16 $\pm$ 314%	3.3E-16 $\pm$ 421%	168.3	2.0	20199	21057
12/23/97-12/30/97	1.9E-16 $\pm$ 241%	4.5E-15 $\pm$ 50%	168.2	1.9	19175	21057
12/30/97-12/31/97			0.0	0	0	21057

SYM00L KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

Warning Levels:	4.0E-10 I-131 µCi/ml	Collect Time Hours	Sample FlowRate CFH	Sample Volume ft ³	Stack FlowRate CFH
On/Off Dates					
12/31/96-01/14/97	<1.3E-14	336.5	2.0	40380	21057
01/14/97-01/28/97	<1.3E-14	335.3	1.9	38226	21057
01/28/97-02/11/97	<1.4E-14	336.3	1.9	38341	21057
02/11/97-02/25/97	<1.7E-14	335.5	1.9	38045	21057
02/25/97-03/11/97	<1.7E-14	335.7	2.0	40280	21057
03/11/97-03/25/97	<1.9E-14	336.6	1.9	38370	21057
03/25/97-04/08/97	<2.8E-14	335.3	2.0	40230	21057
04/08/97-04/22/97	1.5E-15 ± 347%	338.1	2.0	40258	21057
04/22/97-05/06/97	3.7E-15 ± 139%	335.7	2.0	40258	21057
05/06/97-05/20/97	? 8.3E-15 ± 125%	336.6	2.0	40258	21057
05/20/97-06/03/97	-5.3E-15 ± 202%	336.1	2.0	40258	21057
06/03/97-06/17/97	? 4.0E-15 ± 595%	336.2	2.0	40258	21057
06/17/97-07/01/97	? 9.8E-15 ± 176%	335.4	2.0	40258	21057
07/01/97-07/15/97	-6.5E-15 ± 180%	336.0	2.0	40258	21057
07/15/97-07/29/97	? 1.7E-15 ± 692%	336.0	2.0	40258	21057
07/29/97-08/12/97	? 7.6E-15 ± 160%	335.5	2.0	40258	21057
08/12/97-08/26/97	-2.4E-15 ± 525%	336.0	2.0	40258	21057
08/26/97-09/09/97	-5.5E-15 ± 214%	336.4	2.0	40258	21057
09/09/97-09/23/97	-3.8E-15 ± 330%	335.9	2.0	40258	21057
09/23/97-10/07/97	-6.9E-15 ± 193%	336.1	1.8	36373	21057
10/07/97-10/21/97	? 1.2E-14 ± 119%	335.5	1.7	33230	21057
10/21/97-11/04/97	-1.4E-14 ± 100%	335.9	1.8	36373	21057
11/04/97-11/18/97	-2.7E-15 ± 429%	335.8	2.0	40258	21057
11/18/97-12/02/97	-2.8E-15 ± 456%	336.3	2.0	40258	21057
12/02/97-12/16/97	-6.2E-15 ± 189%	335.1	2.0	40258	21057
12/16/97-12/30/97	-9.8E-15 ± 205%	335.4	1.9	38492	21057
12/30/97-12/31/97		0.0	0.0	0	21057

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

04/21/98 12:45

FFTF-CB-E: FFTF Combined Exhaust H-3 (HTO) (F024)

01/01/97 to 12/31/97

Page 1

Warning Levels:	1.0E-07 H-3 μCi/ml	Collect Time Hours	Sample FlowRate CFM	Sample Volume ft3	Stack FlowRate CFM
On/Off Dates					
01/01/97-09/16/97		0.0	0.0	0	21057
09/16/97-09/23/97	2.1E-08 ± 2.2%	161.8	0.0	30	21057
09/23/97-09/30/97	2.4E-08 ± 2.0%	168.0	0.0	28	21057
09/30/97-10/07/97	2.2E-08 ± 2.0%	168.5	0.0	26	21057
10/07/97-10/14/97	2.5E-08 ± 1.7%	167.6	0.0	24	21057
10/14/97-12/31/97		0.0	0.0	0	21057

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

15:04

FFTF-HT-T: FFTF REACTOR HEAT TRANSPORT SYSTEM (F013)

01/01/97 through 12/31/97

Total System Flow: 8.0E+10 Liters = 2.8E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Total α	1.7E-08	1.5E-16	1.0E-15
Total β	2.2E-07	2.0E-15	7.4E-15

04/28/98 16:12

FFTF-HT-T: FFTF REACTOR HEAT TRANSPORT SYSTEM (F013)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-14	9.0E-12	Collect	Sample	Sample	Stack
	Total n		Time	FlowRate	Volume	FlowRate
On/Off Dates	$\mu\text{Ci}/\text{ml}$	$\mu\text{Ci}/\text{ml}$	Hours	CFM	ft ³	CFM
12/31/96-01/07/97	<5.2E-16	<1.6E-15	167.8	2.0	20129	5362
01/07/97-01/14/97	<4.0E-16	<1.6E-15	168.8	2.0	20250	5362
01/14/97-01/21/97	3.8E-16	6.8E-15	167.1	2.0	20050	5362
01/21/97-01/28/97	5.9E-16	3.4E-15	168.1	2.0	20169	5362
01/28/97-02/04/97	1.5E-16	3.7E-15	168.3	2.0	20200	5362
02/04/97-02/11/97	<4.4E-16	7.4E-15	168.3	2.1	20705	5362
02/11/97-02/18/97	2.9E-16	1.7E-15	167.2	2.0	20060	5362
02/18/97-02/25/97	<5.2E-16	2.7E-15	168.0	2.0	20159	5362
02/25/97-03/04/97	<3.8E-16	3.1E-15	169.6	2.0	20350	5362
03/04/97-03/11/97	<3.8E-16	1.7E-15	166.3	2.0	19960	5362
03/11/97-03/18/97	<4.5E-16	3.7E-15	168.5	2.0	20219	5362
03/18/97-03/25/97	6.4E-16	2.2E-15	167.8	1.9	19133	5362
03/25/97-04/01/97	<3.8E-16	<1.5E-15	169.3	2.0	20190	5362
04/01/97-04/08/97	<5.2E-16	<1.6E-15	167.4	2.0	20090	5362
04/08/97-04/15/97	<5.7E-16	<1.7E-15	167.6	2.0	20109	5362
04/15/97-04/22/97	5.6E-16 ± 135%	2.3E-15 ± 78%	168.1	2.0	20164	5362
04/22/97-04/29/97	<6.3E-17 ± 365%	7.2E-16 ± 192%	167.6	2.0	20093	5362
04/29/97-05/06/97	3.8E-16 ± 165%	2.4E-15 ± 75%	168.3	2.0	20199	5362
05/06/97-05/13/97	8.2E-16 ± 104%	1.9E-15 ± 87%	167.9	2.0	20164	5362
05/13/97-05/20/97	1.0E-16 ± 490%	2.2E-15 ± 79%	168.7	2.0	20235	5362
05/20/97-05/27/97	8.4E-17 ± 633%	4.1E-16 ± 339%	167.6	2.0	20093	5362
05/27/97-06/03/97	1.3E-16 ± 395%	3.6E-16 ± 386%	168.5	2.0	20235	5362
06/03/97-06/10/97	<2.1E-17 ± 633%	1.6E-15 ± 104%	167.5	2.0	20093	5362
06/10/97-06/17/97	4.0E-16 ± 153%	1.6E-15 ± 98%	168.8	2.0	20235	5362
06/17/97-06/24/97	4.4E-17 ± 447%	9.6E-16 ± 170%	167.0	1.9	19034	5362
06/24/97-07/01/97	3.8E-16 ± 165%	1.2E-15 ± 118%	168.3	2.0	20199	5362
07/01/97-07/08/97	5.6E-16 ± 135%	1.6E-15 ± 100%	168.0	2.0	20164	5362
07/08/97-07/15/97	3.6E-16 ± 179%	1.1E-15 ± 137%	167.8	2.0	20129	5362
07/15/97-07/22/97	3.3E-16 ± 365%	3.0E-15 ± 59%	168.0	2.0	20164	5362
07/22/97-07/29/97	1.7E-16 ± 274%	2.3E-15 ± 76%	168.3	2.0	20199	5362
07/29/97-08/05/97	5.9E-16 ± 128%	1.5E-15 ± 106%	167.6	2.0	20093	5362
08/05/97-08/12/97	1.5E-15 ± 325%	1.9E-15 ± 89%	167.9	2.0	20129	5362
08/12/97-08/19/97	1.0E-16 ± 490%	2.0E-15 ± 87%	168.0	2.0	20164	5362
08/19/97-08/26/97	1.0E-15 ± 95%	2.8E-15 ± 66%	167.9	2.0	20164	5362
08/26/97-09/02/97	4.4E-16 ± 188%	1.4E-15 ± 117%	168.2	2.0	20164	5362
09/02/97-09/09/97	1.7E-16 ± 274%	2.8E-15 ± 67%	168.0	2.0	20164	5362
09/09/97-09/16/97	1.5E-16 ± 239%	2.4E-15 ± 76%	167.6	2.0	20093	5362
09/16/97-09/23/97	6.8E-17 ± 316%	1.2E-15 ± 140%	168.2	1.9	19175	5362
09/23/97-09/30/97	5.8E-16 ± 128%	3.2E-15 ± 62%	167.3	2.0	20109	5362
09/30/97-10/07/97	4.1E-17 ± 447%	3.3E-16 ± 425%	168.5	2.1	20729	5362
10/07/97-10/14/97	1.6E-16 ± 274%	1.4E-15 ± 110%	166.9	2.1	21118	5362
10/14/97-10/21/97	3.7E-16 ± 165%	2.7E-15 ± 68%	167.6	2.1	20623	5362
10/21/97-10/28/97	1.7E-16 ± 274%	2.4E-15 ± 77%	168.2	2.0	20305	5362
10/28/97-11/04/97	7.5E-16 ± 117%	2.2E-15 ± 81%	167.8	2.0	20129	5362
11/04/97-11/11/97	1.3E-16 ± 395%	4.4E-15 ± 48%	168.3	2.0	20199	5362
11/11/97-11/18/97	9.9E-17 ± 128%	5.5E-15 ± 1%	167.7	2.0	20129	5362
11/18/97-11/25/97	1.9E-16 ± 233%	1.8E-15 ± 96%	168.3	2.0	20199	5362
11/25/97-12/02/97	6.4E-17 ± 633%	2.0E-15 ± 92%	167.1	2.0	20164	5362
12/02/97-12/09/97	3.8E-16 ± 165%	7.3E-15 ± 35%	167.5	2.0	20093	5362
12/09/97-12/16/97	1.5E-16 ± 325%	1.9E-15 ± 91%	168.4	2.0	20199	5362
12/16/97-12/23/97	<5.8E-17 ± 378%	9.5E-16 ± 160%	168.1	2.0	20199	5362
12/23/97-12/30/97	<2.5E-17 ± 577%	1.5E-15 ± 113%	168.1	2.0	20164	5362
12/30/97-12/31/97			0.0	0.0	0	5362

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).

? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

15:04

FFTF-RESB: FFTF LOWER REACTOR SERVICE BUILDING (F012, F016)

01/01/97 through 12/31/97

Total System Flow: 1.9E+11 Liters = 6.6E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.73
 Halogens: 0.87

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
I-131	ND	<4.4E-15	n/a
Total α	2.0E-07	7.9E-16	2.7E-15
Total β	2.1E-06	8.4E-15	2.5E-14

01/01/97 to 12/31/97

FFTF-REC5B: FFTF LOWEN REACTOR SERVICE BUILDING (F032)

04/21/98 12:45

Warning Level:	On/Off Dates	Flowrate	Sample Volume	Stack CFM
2.0E-14	9.0E-12	Total 8	µCi/ml	µCi
9.0E-12	9.0E-12	Total 8	µCi/ml	µCi

12/31/96	01/07/97	5.4E-16	2.9E-15	167.8	2.0	20199	12500	167.8	2.0	20199	12500
01/07/97	01/14/97	1.0E-15	6.4E-15	168.8	2.0	20250	12500	168.8	2.0	20250	12500
01/14/97	01/21/97	1.7E-15	2.1E-14	167.3	1.9	19046	12500	167.3	1.9	19046	12500
01/21/97	01/28/97	8.0E-16	1.3E-14	168.4	2.0	19704	12500	168.4	2.0	19704	12500
01/28/97	02/04/97	4.6E-16	8.5E-15	167.5	2.0	20150	12500	167.5	2.0	20150	12500
02/04/97	02/11/97	2.9E-16	8.3E-15	167.4	2.0	19665	12500	167.4	2.0	19665	12500
02/11/97	02/18/97	5.8E-16	1.8E-14	167.1	2.0	20030	12500	167.1	2.0	20030	12500
02/18/97	02/25/97	1.0E-15	3.0E-15	167.5	2.0	20000	12500	167.5	2.0	20000	12500
02/25/97	03/04/97	1.3E-16	4.4E-15	169.3	2.0	20320	12500	169.3	2.0	20320	12500
03/04/97	03/11/97	1.0E-15	3.0E-15	166.7	2.0	20000	12500	166.7	2.0	20000	12500
03/11/97	03/18/97	1.2E-15	5.8E-15	167.0	2.0	20209	12500	167.0	2.0	20209	12500
03/18/97	03/25/97	5.3E-15	9.4E-15	168.3	2.0	20190	12500	168.3	2.0	20190	12500
03/25/97	04/01/97	5.3E-16	4.1E-15	167.5	2.0	20096	12500	167.5	2.0	20096	12500
04/01/97	04/08/97	2.6E-15	5.4E-15	166.2	2.0	20184	12500	166.2	2.0	20184	12500
04/08/97	04/15/97	1.6E-16	1.2E-14	167.3	2.0	20077	12500	167.3	2.0	20077	12500
04/15/97	04/22/97	2.7E-15	9.4E-15	167.9	2.0	20129	12500	167.9	2.0	20129	12500
04/22/97	04/29/97	3.6E-15	7.6E-15	167.5	2.0	20093	12500	167.5	2.0	20093	12500
04/29/97	05/06/97	1.0E-15	8.3E-15	167.8	2.0	20129	12500	167.8	2.0	20129	12500
05/06/97	05/13/97	1.0E-15	8.3E-15	167.8	2.0	20129	12500	167.8	2.0	20129	12500
05/13/97	05/20/97	1.2E-15	1.2E-14	167.8	2.0	20129	12500	167.8	2.0	20129	12500
05/20/97	05/27/97	6.6E-15	6.6E-15	168.3	2.0	20199	12500	168.3	2.0	20199	12500
05/27/97	06/03/97	6.4E-16	3.0E-15	167.6	1.9	19105	12500	167.6	1.9	19105	12500
06/03/97	06/10/97	6.4E-16	7.1E-15	168.5	2.0	20235	12500	168.5	2.0	20235	12500
06/10/97	06/17/97	8.1E-16	7.1E-15	168.5	2.0	20235	12500	168.5	2.0	20235	12500
06/17/97	06/24/97	5.9E-16	3.1E-15	167.4	2.0	20093	12500	167.4	2.0	20093	12500
06/24/97	07/01/97	4.4E-17	3.0E-15	168.0	2.0	20164	12500	168.0	2.0	20164	12500
07/01/97	07/08/97	1.5E-16	5.4E-15	168.2	2.0	20093	12500	168.2	2.0	20093	12500
07/08/97	07/15/97	1.6E-16	5.8E-15	167.4	2.0	20093	12500	167.4	2.0	20093	12500
07/15/97	07/22/97	7.7E-16	5.7E-15	168.5	2.0	20235	12500	168.5	2.0	20235	12500
07/22/97	07/29/97	1.8E-15	8.4E-15	168.2	2.0	20199	12500	168.2	2.0	20199	12500
07/29/97	08/05/97	8.4E-16	1.4E-14	167.6	1.9	19105	12500	167.6	1.9	19105	12500
08/05/97	08/12/97	7.3E-16	8.9E-15	168.3	2.0	20199	12500	168.3	2.0	20199	12500
08/12/97	08/19/97	7.3E-16	8.9E-15	168.3	2.0	20199	12500	168.3	2.0	20199	12500
08/19/97	08/26/97	2.5E-15	8.7E-15	167.8	2.0	20129	12500	167.8	2.0	20129	12500
08/26/97	09/02/97	1.8E-15	1.1E-14	168.6	2.0	20235	12500	168.6	2.0	20235	12500
09/02/97	09/09/97	1.8E-15	1.1E-14	168.6	2.0	20235	12500	168.6	2.0	20235	12500
09/09/97	09/16/97	1.3E-15	6.4E-15	167.3	2.0	20093	12500	167.3	2.0	20093	12500
09/16/97	09/23/97	8.3E-17	6.8E-15	168.3	2.0	20199	12500	168.3	2.0	20199	12500
09/23/97	09/30/97	1.4E-15	7.0E-15	167.9	2.0	20164	12500	167.9	2.0	20164	12500
09/30/97	10/07/97	2.0E-15	7.0E-15	167.9	2.0	20164	12500	167.9	2.0	20164	12500
10/07/97	10/14/97	1.7E-16	2.7E-16	167.7	2.0	20129	12500	167.7	2.0	20129	12500
10/14/97	10/21/97	8.3E-15	1.2E-14	167.9	2.0	20164	12500	167.9	2.0	20164	12500
10/21/97	10/28/97	2.7E-15	8.6E-15	167.9	2.0	20270	12500	167.9	2.0	20270	12500
10/28/97	11/04/97	1.4E-15	1.1E-14	168.0	2.0	20270	12500	168.0	2.0	20270	12500
11/04/97	11/11/97	2.0E-15	1.7E-14	167.3	2.0	20199	12500	167.3	2.0	20199	12500
11/11/97	11/18/97	6.8E-15	5.5E-15	168.0	2.0	20164	12500	168.0	2.0	20164	12500
11/18/97	11/25/97	6.1E-16	5.5E-15	168.0	2.0	20164	12500	168.0	2.0	20164	12500
11/25/97	12/02/97	8.3E-17	8.3E-17	167.3	2.0	20199	12500	167.3	2.0	20199	12500
12/02/97	12/09/97	4.4E-17	1.0E-14	167.5	2.0	20093	12500	167.5	2.0	20093	12500
12/09/97	12/16/97	6.3E-17	1.0E-14	168.2	2.0	20199	12500	168.2	2.0	20199	12500
12/16/97	12/23/97	5.7E-16	5.3E-15	168.3	2.0	20235	12500	168.3	2.0	20235	12500
12/23/97	12/30/97	1.9E-16	6.8E-15	168.1	1.9	19175	12500	168.1	1.9	19175	12500
12/30/97	12/31/97	0.0	0.0	12500	0	0	12500	0.0	0.0	0	12500

SYMBOL KEY: * Concentration exceeds Warning Level (factored DBS).

?

Questionable Result - No Peak Detected.

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Stack Flowrate of previous Sample used.

04/21/98 12:45

Warning Levels:	4.0E-10	Collect	Sample	Sample	Stack
On/Off Dates	I-131	Time	FlowRate	Volume	FlowRate
	$\mu\text{Ci/ml}$	Hours	CFH	ft ³	CFH
12/31/96-01/13/97	<1.3E-14		334.6	2.0	40149
01/14/97-01/28/97	<1.4E-14		335.1	2.0	40209
01/28/97-02/11/97	<1.2E-14		336.5	2.0	40380
02/11/97-02/25/97	<1.5E-14		335.4	2.0	40248
02/25/97-03/11/97	<1.5E-14		336.0	2.0	40320
03/11/97-03/25/97	<1.9E-14		336.7	2.0	40480
03/25/97-04/08/97	<2.6E-14		335.7	2.0	40280
04/08/97-04/22/97	-4.3E-15 $\pm$ 117%		335.2	2.0	40258
04/22/97-05/06/97	-1.7E-14 $\pm$ 169%		336.1	2.0	40258
05/06/97-05/20/97	? 1.1E-14 $\pm$ 92%		335.7	2.0	40258
05/20/97-06/03/97	? 1.3E-15 $\pm$ 394%		336.8	2.0	40258
06/03/97-06/17/97	? 1.3E-14 $\pm$ 87%		336.1	2.0	40258
06/17/97-07/01/97	-1.8E-14 $\pm$ 103%		335.4	2.0	40258
07/01/97-07/15/97	-5.8E-15 $\pm$ 207%		335.6	2.0	40258
07/15/97-07/29/97	-8.2E-15 $\pm$ 140%		336.8	2.0	40258
07/29/97-08/12/97	? 2.7E-15 $\pm$ 418%		335.0	2.0	40258
08/12/97-08/26/97	-5.8E-15 $\pm$ 199%		335.1	2.0	40258
08/26/97-09/09/97	? 4.1E-15 $\pm$ 291%		336.7	2.0	40258
09/09/97-09/23/97	-8.5E-15 $\pm$ 147%		335.7	2.0	40258
09/23/97-10/07/97	-6.2E-15 $\pm$ 193%		335.2	2.0	40258
10/07/97-10/21/97	-4.3E-15 $\pm$ 289%		335.7	1.9	38139
10/21/97-11/04/97	? 3.4E-15 $\pm$ 382%		335.9	2.0	40258
11/04/97-11/18/97	? 4.8E-15 $\pm$ 247%		336.1	2.0	40258
11/18/97-12/02/97	-4.8E-15 $\pm$ 260%		335.3	2.0	40258
12/02/97-12/16/97	? 1.7E-15 $\pm$ 710%		335.8	2.0	40258
12/16/97-12/30/97	-1.9E-14 $\pm$ 109%		336.3	1.9	38492
12/30/97-12/31/97			0.0	0.0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG) . ? Questionable Result - No Peak Detected.

^^ Stack FlowRate of previous Sample used.

2.8 Emission Units That Did Not Operate During CY-1997

The following are either radioactive emission units that did not operate or new emission units that have not operated with a radioactive source term.

296-A-12	296-A-13	296-A-20	296-A-42
296-A-43	296-C-6	296-C-7	296-P-17
296-P-33	296-P-34	296-P-41	296-T-13
296-T-11	296-S-25	296-U-11	296-W-4

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3.0 LIQUID EFFLUENT RELEASES & DATA

This section contains all of the radioactive liquid effluent release reports and the sample collection and analysis supporting data. Sub-section 3.1 contains the liquid effluent releases calculated for each major operating area, with active source terms. The remaining sub-sections include the sample collection and analysis supporting data (trend reports) and radioactive liquid effluent releases (release reports) for individual discharge points or source terms. No release or trend reports were included for those discharge points or source terms which did not operate in CY-1997.

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3.1 All Area Liquid Release Reports

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/27/98

08:22

Radionuclides Discharged to the Columbia River from 100 Areas

** 01/01/97 through 12/31/97 ***

Total System Flow: 1.1E+09 Liters = 2.8E+08 Gallons

Radionuclide	Halflife	Release, Ci
H-3	12.3 Years	1.3E-01
K-40	1.3E+8 Years	ND
Co-60	5.27 Years	ND
Sr-90	29.12 Years	1.3E-01
Ru-106	368 Days	ND
Sb-125	2.8 Years	ND
Cs-134	2.1 Years	ND
Cs-137	30 Years	ND
Eu-154	8.8 Years	ND
Eu-155	4.96 Years	ND
Pu-238	87.8 Years	ND
Pu239/40	24,131 Years*	ND
Am-241	432 Years	5.9E-07
Total α	n/a	7.8E-05
Total β	n/a	4.1E-04

* The half-life shown for Total Uranium is the half-life of ^{238}U . The half-life shown for mixed $^{239/240}\text{Pu}$ is the half-life of ^{239}Pu .

** Values for one or more files projected backward to cover report period.

*** Values for one or more files projected forward to cover report period.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/27/98

08:22

Radionuclides Discharged to Ground from 200 Areas

01/01/97 through 12/31/97

Total System Flow: 1.4E+09 Liters = 3.6E+08 Gallons

Radionuclide	Halflife	Release, Ci
H-3	12.3 Years	2.5E+01
C-14	5,700 Years	2.2E-05
Sr-90	29.12 Years	1.5E-04
Tc-99	2.13E+5 Years	4.2E-05
Ru-106	368 Days	ND
Sn-113	115 Days	ND
Sb-125	2.8 Years	ND
I-129	1.57E+7 Years	1.3E-04
Cs-134	2.1 Years	ND
Cs-137	30 Years	4.6E-04
Ra-226	1,600 Years	5.5E-05
U-234	2.45E+5 Years	2.3E-04
U-235	7.04E+8 Years	1.9E-05
U-238	4.47E+9 Years	1.7E-04
Np-237	2.14E+9 Years	1.8E-06
Pu-238	87.8 Years	7.4E-05
Pu239/40	24,131 Years*	7.0E-05
Am-241	432 Years	1.8E-04
Total α	n/a	3.8E-04
Total β	n/a	8.6E-04

* The half-life shown for Total Uranium is the half-life of ^{238}U . The half-life shown for mixed $^{239/240}\text{Pu}$ is the half-life of ^{239}Pu .

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3.2 100 Areas

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

15:08

1LK004: 1908-K OUTFALL (Y130)

01/01/97 through 12/31/97

Total System Flow: 1.0E+09 Liters = 2.8E+08 Gallons

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
H-3	ND	<0.0E+00	n/a
K-40	ND	<0.0E+00	n/a
Co-60	ND	-1.0E-09	-4.4E-09
Sr-90	2.4E-03	2.3E-09	1.3E-08
Ru-106	ND	-2.2E-09	-4.5E-08
Sb-125	ND	<0.0E+00	n/a
Cs-134	ND	-3.2E-10	-6.7E-09
Cs-137	ND	<0.0E+00	n/a
Eu-154	ND	<0.0E+00	n/a
Eu-155	ND	<0.0E+00	n/a
Pu-238	ND	<0.0E+00	n/a
Pu239/40	ND	-1.7E-12	-4.5E-12
Am-241	5.9E-07	5.6E-13	1.2E-11
Total α	7.8E-05	7.4E-11	8.1E-10
Total β	4.1E-04	3.9E-10	4.2E-09

05/06/98 12:52

ILK004: 1908-K OUTFALL (Y130)

01/01/97 to 12/31/97

Page 1

Warning Levels:		3.0E-03	K-40	3.0E-05	2.0E-07	1.0E-05	1.0E-04	9.0E-06	2.0E-05	Eu-154
On/Off Dates		H-3 µCi/ml	µCi/ml	Co-60 µCi/ml	Sr-90 µCi/ml	Ru-106 µCi/ml	Sb-125 µCi/ml	Cs-134 µCi/ml	Cs-137 µCi/ml	µCi/ml
12/19/96-01/29/97		2.9E-08 ± 449%	4.9E-08 ± 263%	? 1.2E-09 ± 288%	1.1E-09 ± 134%	-2.1E-08 ± 207%	? 7.7E-09 ± 133%	? 2.3E-09 ± 170%	? 9.2E-10 ± 549%	? 3.7E-09 ± 403%
01/29/97-02/26/97		6.9E-08 ± 192%	? 9.9E-08 ± 33%	-1.2E-10 ± 999%	3.0E-10 ± 52%	-1.1E-09 ± 999%	? 2.6E-09 ± 198%	-6.3E-10 ± 332%	? 2.2E-09 ± 87%	-2.3E-09 ± 261%
02/26/97-03/26/97		9.1E-08 ± 158%	? 1.4E-07 ± 34%	-1.9E-09 ± 165%	3.2E-10 ± 58%	-6.7E-09 ± 340%	-1.6E-09 ± 340%	? 6.9E-10 ± 346%	? 7.5E-10 ± 918%	? 7.5E-10 ± 918%
03/26/97-04/30/97		5.1E-09 ± 999%	? 3.0E-07 ± 23%	? 7.9E-10 ± 433%	3.2E-10 ± 56%	-1.6E-08 ± 171%	? 4.2E-09 ± 201%	? 1.7E-09 ± 180%	? 3.9E-09 ± 87%	-2.4E-09 ± 417%
04/30/97-05/28/97		9.0E-08 ± 164%	? 1.9E-07 ± 47%	-4.4E-09 ± 98%	1.0E-10 ± 115%	? 4.7E-08 ± 91%	? 8.4E-09 ± 138%	? 1.5E-09 ± 235%	? 5.9E-10 ± 870%	? 1.4E-08 ± 68%
05/28/97-06/25/97		6.0E-08 ± 248%	? 2.3E-07 ± 31%	? 1.0E-09 ± 449%	2.5E-10 ± 67%	-4.5E-08 ± 93%	? 1.5E-08 ± 71%	-6.7E-09 ± 75%	-3.6E-09 ± 125%	? 1.1E-08 ± 128%
06/25/97-07/30/97		-1.4E-08 ± 999%	? 5.6E-08 ± 124%	-5.0E-09 ± 96%	1.3E-10 ± 105%	? 4.8E-08 ± 75%	-7.4E-09 ± 165%	? 2.4E-09 ± 174%	-2.4E-09 ± 201%	-4.0E-09 ± 380%
07/30/97-08/27/97		8.7E-08 ± 168%	? 2.7E-07 ± 34%	-3.4E-09 ± 186%	? 5.2E-08 ± 76%	-2.3E-09 ± 455%	? 1.4E-09 ± 253%	-7.6E-10 ± 599%	-7.6E-10 ± 599%	-5.4E-10 ± 999%
08/27/97-09/24/97		1.5E-07 ± 102%	? 1.6E-08 ± 198%	4.5E-10 ± 94%	5.1E-09 ± 377%	? 4.3E-10 ± 999%	-1.4E-09 ± 155%	-8.1E-10 ± 230%	-3.4E-10 ± 999%	-3.4E-10 ± 999%
09/24/97-10/29/97		8.4E-08 ± 177%	? 2.6E-07 ± 25%	-3.7E-09 ± 118%	7.9E-10 ± 44%	? 4.8E-09 ± 604%	-1.2E-10 ± 999%	-3.6E-09 ± 129%	? 5.5E-09 ± 69%	-4.7E-09 ± 222%
10/29/97-11/26/97		2.2E-09 ± 662%	? 2.3E-07 ± 39%	? 5.0E-09 ± 93%	2.2E-10 ± 108%	-1.6E-08 ± 128%	-1.8E-09 ± 328%	-1.7E-09 ± 145%	? 3.2E-09 ± 68%	-2.0E-09 ± 223%
11/26/97-12/31/97		8.7E-08 ± 165%	? 1.2E-07 ± 31%	? 1.4E-09 ± 182%	2.4E-10 ± 93%	-1.7E-08 ± 253%	? 8.9E-09 ± 119%	-2.6E-09 ± 177%	? 2.3E-09 ± 156%	-5.3E-09 ± 239%
12/31/97-01/28/98		4.3E-08 ± 307%	? 1.7E-07 ± 46%	? 1.2E-09 ± 401%						

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

05/06/98 12:52

ILK004: 1908-K OUTFALL (Y130)

01/01/97 to 12/31/97

Page 2

Warning Levels:		Eu-155	5.0E-06	5.0E-06	Am-241	3.0E-08	3.0E-06	Waste Stream	
On/Off Dates		µCi/ml	Pu-238 µCi/ml	Pu-239/Am µCi/ml	µCi/ml	Total α µCi/ml	Total β µCi/ml	FlowRate GPH	Volume Liters
12/19/96-01/29/97		-6.7E-09 ± 138%	-8.5E-14 ± 999%	2.6E-12 ± 236%	5.1E-12 ± 155%	1.4E-10 ± 188%	2.4E-09 ± 67%	513	1.12E+08
01/29/97-02/26/97		-2.6E-09 ± 106%	-8.5E-14 ± 999%	8.5E-12 ± 119%	8.1E-12 ± 153%	4.6E-10 ± 107%	2.1E-09 ± 73%	342	52198568
02/26/97-03/26/97		? 1.3E-09 ± 405%	2.7E-12 ± 265%	-2.0E-13 ± 999%	-8.4E-13 ± 637%	3.2E-10 ± 139%	1.8E-09 ± 86%	436	66911224
03/26/97-04/30/97		? 1.9E-09 ± 339%	-3.0E-12 ± 116%	-1.3E-11 ± 80%	-1.2E-12 ± 992%	4.1E-10 ± 108%	5.4E-10 ± 263%	411	78266128
04/30/97-05/28/97		? 5.5E-09 ± 165%	7.3E-12 ± 153%	7.3E-12 ± 138%	6.8E-13 ± 891%	6.1E-10 ± 56%	1.6E-09 ± 80%	463	70484488
05/28/97-06/25/97		? 2.2E-09 ± 237%	-2.8E-12 ± 263%	1.1E-11 ± 122%	1.2E-11 ± 99%	4.1E-10 ± 93%	1.6E-09 ± 86%	325	50104968
06/25/97-07/30/97		-8.2E-09 ± 118%	-3.0E-12 ± 118%	-4.5E-12 ± 82%	2.1E-12 ± 319%	2.4E-11 ± 999%	9.4E-10 ± 138%	805	1.53E+08
07/30/97-08/27/97		? 2.7E-10 ± 999%	3.1E-13 ± 406%	8.2E-13 ± 406%	3.3E-12 ± 403%	1.1E-10 ± 381%	1.1E-09 ± 146%	1006	1.65E+08
08/27/97-09/24/97		-3.5E-10 ± 999%	3.2E-12 ± 553%	1.9E-12 ± 650%	6.7E-12 ± 325%	8.7E-11 ± 945%	-8.4E-10 ± 470%	668	1.02E+08
09/24/97-10/29/97		-4.3E-09 ± 155%	1.3E-12 ± 587%	-1.2E-12 ± 489%	-1.1E-13 ± 999%	3.8E-10 ± 265%	-4.9E-09 ± 77%	582	1.11E+08
10/29/97-11/26/97		? 1.0E-08 ± 78%	-6.2E-13 ± 999%	9.4E-12 ± 124%	9.3E-12 ± 163%	6.7E-10 ± 196%	4.2E-09 ± 45%	371	56812064
11/26/97-12/31/97		-2.4E-09 ± 230%	2.8E-12 ± 265%	2.9E-13 ± 999%	1.7E-12 ± 444%	2.4E-10 ± 144%	1.7E-09 ± 86%	310	58412572
12/31/97-01/28/98		? 5.9E-09 ± 151%	-4.8E-13 ± 999%	-2.0E-12 ± 257%	3.9E-12 ± 197%	1.7E-10 ± 246%	6.3E-10 ± 213%	293	44593284

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

HNF-2665 Rev. 0

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

15:07

1LN130: 100-N AREA RIVER SPRINGS (Y101) WELL N-46 (Y101)

** 01/01/97 through 12/31/97 **

Total System Flow: 2.2E+07 Liters = 5.8E+06 Gallons

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci/ml}$	
		Average	Peak
H-3	1.3E-01	5.9E-06	1.6E-05
Sr-90	1.3E-01	6.0E-06	1.1E-05

** Values projected for period 01/01/97 to 01/15/97.

*** Values projected for period 12/04/97 to 12/31/97.

05/06/98 12:52

1LN130: 100-N AREA RIVER SPRINGS (Y101) WELL N-46 (Y101)

01/01/97 to 12/31/97

Page 1

On/Off Dates	Warning Levels:		1.0E-06		Waste Stream	
	H-3	µCi/ml	Sr-90	µCi/ml	FlowRate	Volume
					GPM	Liters
01/15/97			* 2.8E-06 ± 18%		11	0
02/19/97	1.7E-06 ± 18%		* 4.0E-06 ± 30%		11	0
03/18/97	1.5E-06 ± 9.0%		* 9.4E-06 ± 30%		11	0
04/03/97	8.5E-07 ± 28%		* 3.8E-06 ± 29%		11	0
05/09/97	3.3E-07 ± 71%		* 3.1E-06 ± 35%		11	0
06/05/97	5.8E-07 ± 42%		* 2.4E-06 ± 37%		11	0
07/10/97	2.8E-06 ± 14%		* 5.2E-06 ± 35%		11	0
08/11/97	8.0E-06 ± 10%		* 8.3E-06 ± 35%		11	0
09/11/97	1.6E-05 ± 8.0%				11	0
09/17/97			* 1.1E-05 ± 35%		11	0
10/13/97	1.2E-05 ± 9.0%		* 9.1E-06 ± 35%		11	0
11/06/97	9.6E-06 ± 9.0%		* 8.3E-06 ± 31%		11	0
12/04/97	6.2E-06 ± 10%		* 6.6E-06 ± 36%		11	0

SYMBOL KEY: * Concentration exceeds Warning Level (Factored DCG).

? Questionable Result - No Peak Detected.

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3.3 200 East Area

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

15:07

ACW: 242-A EVAPORATOR COOLING WATER (H108)

01/01/97 through 12/31/97

Total System Flow: 7.0E+08 Liters = 1.9E+08 Gallons

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
H-3	6.2E-02	8.8E-08	2.3E-06
Sr-90	ND	<0.0E+00	n/a
Ru-106	ND	<0.0E+00	n/a
Sn-113	ND	<0.0E+00	n/a
Sb-125	ND	<0.0E+00	n/a
Cs-134	ND	<0.0E+00	n/a
Cs-137	ND	<0.0E+00	n/a
U-234	2.3E-04	3.3E-10	3.7E-10
U-235	1.9E-05	2.7E-11	5.4E-11
U-238	1.7E-04	2.4E-10	2.8E-10
Pu-238	5.3E-05	7.5E-11	1.3E-10
Pu239/40	5.7E-05	8.1E-11	1.4E-10
Am-241	1.2E-04	1.7E-10	2.1E-10
Total α	1.8E-04	2.5E-10	1.1E-09
Total β	6.1E-04	8.7E-10	5.6E-09

05/06/98 12:52

ACW: 242-A EVAPORATOR COOLING WATER (H108)

01/01/97 to 12/31/97

Page 1

Warning Levels:	8.0E-05 H-3 µCi/ml	2.0E-05 Sr-90 µCi/ml	6.0E-05 Ru-106 µCi/ml	5.0E-05 Sn-113 µCi/ml	5.0E-05 Sb-125 µCi/ml	2.0E-06 Cs-134 µCi/ml	3.0E-05 Cs-137 µCi/ml	2.0E-08 U-234 µCi/ml	2.4E-08 U-235 µCi/ml
On/Off Dates									
01/01/97-01/31/97									
02/01/97-02/28/97	1.1E-07 ± 50%	1.2E-09 ± 100%	4.4E-08 ± 86%	1.7E-09 ± 330%	3.1E-09 ± 380%	2.8E-10 ± 999%	1.3E-09 ± 300%	2.7E-10 ± 30%	2.9E-11 ± 110%
03/01/97-03/31/97	1.5E-07 ± 50%	1.7E-09 ± 100%	2.3E-08 ± 160%	5.8E-10 ± 930%	5.5E-09 ± 200%	4.7E-10 ± 820%	2.6E-10 ± 999%	3.7E-10 ± 30%	3.5E-11 ± 90%
04/01/97-04/30/97	1.1E-07 ± 40%	3.7E-10 ± 410%	2.2E-08 ± 200%	1.8E-09 ± 340%	4.8E-09 ± 260%	2.6E-09 ± 190%	1.7E-09 ± 270%	3.4E-10 ± 28%	4.5E-11 ± 68%
06/01/97-06/30/97	5.0E-07 ± 30%	2.6E-09 ± 100%	3.0E-08 ± 130%	3.3E-09 ± 180%	3.9E-10 ± 999%	1.3E-09 ± 310%	2.6E-10 ± 999%	3.1E-10 ± 26%	1.6E-11 ± 150%
07/01/97-07/31/97	2.3E-06 ± 20%	1.0E-10 ± 999%	1.2E-09 ± 999%	1.7E-09 ± 520%	5.8E-10 ± 999%	2.0E-09 ± 210%	1.9E-09 ± 220%	2.3E-10 ± 33%	5.4E-11 ± 79%
08/01/97-12/31/97									

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

05/06/98 12:52

ACW: 242-A EVAPORATOR COOLING WATER (H108)

01/01/97 to 12/31/97

Page 2

Warning Levels:	2.4E-08 U-238 µCi/ml	4.0E-08 Pu-239 µCi/ml	6.0E-08 Pu-239/40 µCi/ml	4.6E-07 Am-241 µCi/ml	1.2E-09 Total α µCi/ml	4.0E-08 Total β µCi/ml	Waste Stream FlowRate GPM	Volume Liters
On/Off Dates								
01/01/97-01/31/97							0	0
02/01/97-02/28/97	1.8E-10 ± 40%	5.9E-12 ± 200%	1.8E-11 ± 120%	1.6E-10 ± 40%	8.8E-10 ± 70%	5.6E-09 ± 20%	546	1389933
03/01/97-03/31/97	2.0E-10 ± 40%	5.6E-12 ± 200%	1.7E-11 ± 180%	1.2E-10 ± 60%	1.2E-10 ± 680%	1.3E-09 ± 60%	658	1.11E+08
04/01/97-04/30/97	2.8E-10 ± 29%	1.3E-10 ± 46%	1.4E-10 ± 44%	1.7E-10 ± 48%	2.4E-10 ± 260%	4.3E-10 ± 170%	1641	2.68E+08
06/01/97-06/30/97	1.9E-10 ± 33%	6.1E-12 ± 450%	1.2E-11 ± 140%	2.1E-10 ± 41%	1.1E-09 ± 60%	1.0E-10 ± 690%	381	62447000
07/01/97-07/31/97	2.0E-10 ± 36%	2.1E-11 ± 120%	2.8E-11 ± 120%	1.6E-10 ± 65%	5.9E-10 ± 120%	9.7E-11 ± 780%	38	6454538
08/01/97-12/31/97							0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

15:07

ASC: 242-A EVAPORATOR STEAM CONDENSATE (H110)

01/01/97 through 12/31/97

Total System Flow: 3.2E+06 Liters = 8.5E+05 Gallons

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
H-3	ND	<0.0E+00	n/a
Sr-90	8.6E-06	2.7E-09	3.2E-09
Ru-106	ND	<0.0E+00	n/a
Sn-113	ND	<0.0E+00	n/a
Sb-125	ND	<0.0E+00	n/a
Cs-134	ND	<0.0E+00	n/a
Cs-137	ND	<0.0E+00	n/a
Pu-238	ND	<0.0E+00	n/a
Pu239/40	1.5E-07	4.7E-11	5.6E-11
Am-241	4.8E-07	1.5E-10	5.6E-10
Total α	ND	<0.0E+00	n/a
Total β	5.9E-06	1.8E-09	2.2E-09

05/06/98 12:52

ASC: 242-A EVAPORATOR STEAM CONDENSATE (H110)

01/01/97 to 12/31/97

Page 1

Warning Levels:	8.0E-05 H-3 μCi/ml	2.0E-05 Sr-90 μCi/ml	6.0E-05 Ru-106 μCi/ml	5.0E-05 Sn-113 μCi/ml	5.0E-05 Sb-125 μCi/ml	2.0E-06 Cs-134 μCi/ml	3.0E-05 Cs-137 μCi/ml	4.0E-08 Pu-238 μCi/ml	6.0E-08 Pu-239/40 μCi/ml
On/Off Dates									
01/01/97-02/22/97									
02/23/97-03/31/97	8.1E-08 ± 60%	3.2E-09 ± 40%	-3.9E-09 ± 980%	? 2.4E-09 ± 250%	-2.4E-09 ± 500%	-2.0E-09 ± 200%	? 1.0E-09 ± 440%	? 5.6E-12 ± 530%	5.6E-11 ± 70%
04/01/97-04/03/97	? 1.6E-07 ± 40%	? 1.0E-10 ± 999%	? 9.0E-09 ± 560%	-1.1E-09 ± 560%	-3.3E-10 ± 999%	-6.8E-10 ± 820%	? 1.0E-09 ± 560%	? 5.6E-12 ± 200%	1.7E-11 ± 120%
04/04/97-12/31/97									

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

05/06/98 12:52

ASC: 242-A EVAPORATOR STEAM CONDENSATE (H110)

01/01/97 to 12/31/97

Page 2

Warning Levels:	4.8E-07 Am-241 μCi/ml	1.2E-09 Total α μCi/ml	4.0E-08 Total β μCi/ml	Waste Stream FlowRate GPM	Volume Liters
On/Off Dates					
01/01/97-02/22/97				0	0
02/23/97-03/31/97	6.5E-11 ± 70%	? 1.0E-10 ± 680%	2.2E-09 ± 40%	13	2694194
04/01/97-04/03/97	5.6E-10 ± 30%	-2.0E-10 ± 210%	-8.5E-10 ± 100%	32	536221
04/04/97-12/31/97				0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

15:07

CA8: 241-A TANK FARM COOLING WATER (H115)

01/01/97 through 12/31/97

Total System Flow: 5.4E+08 Liters = 1.4E+08 Gallons

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	1.1E-04	2.0E-10	1.5E-09
Ru-106	ND	<0.0E+00	n/a
Sn-113	ND	<0.0E+00	n/a
Sb-125	ND	<0.0E+00	n/a
Cs-134	ND	<0.0E+00	n/a
Cs-137	ND	<0.0E+00	n/a
Pu-238	1.3E-05	2.3E-11	1.9E-10
Pu239/40	9.7E-06	1.8E-11	7.6E-11
Am-241	5.9E-05	1.1E-10	2.4E-10
Total α	2.0E-04	3.7E-10	1.7E-09
Total β	1.5E-04	2.7E-10	2.0E-09

05/06/98 12:52

CAB: 241-A TANK FARM COOLING WATER (H115)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-05 Sr-90	6.0E-05 Ru-106	5.0E-05 Sn-113	5.0E-05 Sb-125	2.0E-06 Cs-134	3.0E-05 Cs-137	4.0E-08 Pu-238	6.0E-08 Pu239/40	4.8E-07 Am-241
On/Off Dates	µCi/ml	µCi/ml	µCi/ml	µCi/ml	µCi/ml	µCi/ml	µCi/ml	µCi/ml	µCi/ml
01/01/97-01/31/97	1.5E-09 ± 60x	1.0E-08 ± 410x	? 6.2E-09 ± 94x	-1.4E-09 ± 900x	-2.7E-09 ± 190x	? 2.0E-09 ± 230x	-5.1E-12 ± 200x	? 1.0E-11 ± 210x	1.1E-10 ± 50x
02/01/97-02/28/97	-7.7E-10 ± 140x	? 1.6E-08 ± 220x	-9.2E-11 ± 990x	-5.3E-09 ± 220x	? 1.1E-09 ± 340x	-1.8E-10 ± 990x	1.9E-10 ± 40x	2.5E-11 ± 100x	1.3E-10 ± 50x
03/01/97-03/31/97	-5.9E-10 ± 180x	? 9.4E-10 ± 990x	-6.2E-11 ± 990x	? 3.6E-09 ± 330x	-3.4E-10 ± 990x	-2.0E-09 ± 210x	-5.2E-12 ± 350x	3.1E-11 ± 80x	1.2E-10 ± 50x
04/01/97-04/30/97	? 1.2E-09 ± 200x	? 8.3E-09 ± 460x	-3.3E-09 ± 170x	-2.8E-09 ± 430x	? 9.0E-10 ± 460x	? 5.1E-09 ± 160x	-7.0E-12 ± 200x	2.1E-11 ± 120x	? 9.7E-11 ± 80x
05/01/97-05/31/97	-7.0E-10 ± 240x	-1.2E-08 ± 310x	-4.2E-11 ± 990x	-5.2E-09 ± 220x	? 1.2E-09 ± 330x	-2.9E-09 ± 150x	? 1.1E-11 ± 140x	7.6E-11 ± 56x	? 9.7E-11 ± 78x
06/01/97-06/30/97	-2.0E-10 ± 890x	-1.6E-08 ± 240x	-1.8E-09 ± 290x	-3.0E-09 ± 410x	-1.2E-10 ± 990x	-1.1E-09 ± 370x	1.6E-11 ± 120x	2.7E-11 ± 91x	1.1E-10 ± 55x
07/01/97-07/31/97	-6.8E-10 ± 220x	? 5.0E-09 ± 770x	-2.5E-09 ± 220x	-1.3E-08 ± 100x	-1.0E-09 ± 400x	-2.6E-11 ± 990x	? 1.2E-11 ± 200x	? 1.8E-11 ± 150x	2.4E-10 ± 42x
08/01/97-08/18/97	-2.9E-10 ± 540x	-2.1E-09 ± 990x	? 2.9E-09 ± 200x	-3.1E-09 ± 390x	-1.6E-09 ± 260x	-2.4E-09 ± 170x	? 5.7E-12 ± 350x	? 1.7E-11 ± 150x	2.1E-10 ± 62x
08/18/97-12/31/97									

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

05/06/98 12:52

CAB: 241-A TANK FARM COOLING WATER (H115)

01/01/97 to 12/31/97

Page 2

Warning Levels:	1.2E-09 Total α	4.0E-08 Total β	Waste Stream FlowRate Volume GPM Liters
On/Off Dates	µCi/ml	µCi/ml	
01/01/97-01/31/97	? 5.6E-10 ± 90x	2.0E-09 ± 40x	431 72990120
02/01/97-02/28/97	? 7.7E-10 ± 70x	? 8.7E-10 ± 80x	431 65926404
03/01/97-03/31/97	? 7.4E-10 ± 130x	? 7.1E-10 ± 100x	431 72990120
04/01/97-04/30/97	-3.6E-10 ± 130x	-4.7E-10 ± 150x	431 70635552
05/01/97-05/31/97	? 9.0E-10 ± 80x	? 9.7E-11 ± 750x	431 72990120
06/01/97-06/30/97	1.1E-09 ± 60x	? 7.8E-10 ± 100x	431 70635552
07/01/97-07/31/97	? 7.9E-10 ± 90x	-5.8E-10 ± 120x	431 72990120
08/01/97-08/18/97	* 1.7E-09 ± 50x	-9.7E-10 ± 100x	431 41360360
08/18/97-12/31/97			0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

15:07

CAR: 244-AR VAULT COOLING WATER (H116)

01/01/97 through 12/31/97

Total System Flow: 1.2E+06 Liters = 3.3E+05 Gallons

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	1.2E-06	9.6E-10	3.1E-09
Ru-106	ND	<0.0E+00	n/a
Sn-113	ND	<0.0E+00	n/a
Sb-125	ND	<0.0E+00	n/a
Cs-134	ND	<0.0E+00	n/a
Cs-137	ND	<0.0E+00	n/a
Pu-238	2.5E-08	2.0E-11	3.0E-10
Pu239/40	2.5E-08	2.0E-11	1.1E-10
Am-241	1.3E-07	1.1E-10	3.6E-10
Total α	ND	<0.0E+00	n/a
Total β	3.0E-06	2.4E-09	3.6E-09

Page 2

01/01/97 to 12/31/97

CAR: 244-AR VAULT COOLING WATER (H116)

05/06/98 12:52

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG).
? Questionable Result - No Peak Detected.

[illegible]

Page 1

01/01/97 to 12/31/97

CAR: 244-AR VAULT COOLING WATER (H116)

05/06/98 12:52

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

15:07

CBC: B-PLANT COOLING WATER (H117)

01/01/97 through 12/31/97

Total System Flow: 1.4E+07 Liters = 3.8E+06 Gallons

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Sr-90	ND	<0.0E+00	n/a
Ru-106	ND	<0.0E+00	n/a
Sn-113	ND	<0.0E+00	n/a
Sb-125	ND	<0.0E+00	n/a
Cs-134	ND	<0.0E+00	n/a
Cs-137	5.0E-06	3.5E-10	1.1E-08
Total α	7.3E-07	5.1E-11	1.6E-09
Total β	5.8E-05	4.1E-09	9.4E-09

05/06/98 12:53

CBC: B-PLANT COOLING WATER (H117)

01/01/97 to 12/31/97

Page 1

Warning Levels:	2.0E-05 Sr-90	6.0E-05 Ru-106	5.0E-05 Sn-113	5.0E-05 Sb-125	2.0E-06 Cs-134	3.0E-05 Cs-137	1.2E-09 Total α μCi/ml	4.0E-08 Total β μCi/ml	Waste Stream FlowRate	Volume
On/Off Dates	μCi/ml	μCi/ml	μCi/ml	μCi/ml	μCi/ml	μCi/ml	μCi/ml	μCi/ml	GPH	Liters
01/01/97-01/31/97	-4.3E-10 ± 230%	? 1.4E-08 ± 360%	-4.0E-09 ± 170%	? 6.3E-09 ± 220%	? 5.2E-09 ± 110%	? 5.7E-09 ± 100%	? 2.2E-10 ± 180%	3.9E-09 ± 25%	78	13277174
02/01/97-02/28/97	-2.5E-09 ± 100%	-2.0E-08 ± 210%	-3.1E-09 ± 180%	-6.7E-09 ± 170%	? 2.0E-09 ± 200%	1.1E-08 ± 63%	* 1.6E-09 ± 50%	9.4E-09 ± 16%	2	457834
03/01/97-03/31/97	-2.0E-10 ± 510%	-3.4E-08 ± 120%	? 4.5E-09 ± 120%	-2.6E-09 ± 460%	? 2.4E-09 ± 170%	? 5.0E-09 ± 91%	? 1.2E-10 ± 680%	3.2E-09 ± 30%	2	506887
04/01/97-12/31/97									0	0

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

ENVIRONMENTAL RELEASE SUMMARY REPORT

04/03/98

15:07

ETF: EFFLUENT TREATMENT FACILITY DISCHARGES (H129)

01/01/97 through 12/31/97

Total System Flow: 5.5E+07 Liters = 1.5E+07 Gallons

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
H-3	2.5E+01	4.5E-04	4.5E-04
C-14	2.2E-05	4.0E-10	4.0E-10
Sr-90	2.8E-05	5.1E-10	5.1E-10
Tc-99	4.2E-05	7.6E-10	7.6E-10
I-129	1.3E-04	2.4E-09	2.4E-09
Cs-137	ND	<8.3E-09	n/a
Ra-226	5.5E-05	9.9E-10	9.9E-10
Pu-238	8.1E-06	1.5E-10	1.5E-10
Pu239/40	2.8E-06	5.0E-11	5.0E-11
Am-241	7.0E-06	1.3E-10	1.3E-10
Total α	6.8E-06	1.2E-10	1.2E-10
Total β	4.1E-05	7.3E-10	7.3E-10

ENVIRONMENTAL RELEASE SUMMARY REPORT

05/07/98

09:40

ETFX: EFFLUENT TREATMENT FACILITY Np-237 DISCHARGES (Q901)

01/01/97 through 12/31/97

Total System Flow: 5.5E+07 Liters = 1.5E+07 Gallons

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci}/\text{ml}$	
		Average	Peak
Np-237	1.8E-06	3.3E-11	3.3E-11

ETF: EFFLUENT TREATMENT FACILITY DISCHARGES (H129)

01/01/97 to 12/31/97

Page 1

05/06/98 12:53	Warning Levels:	2.0E-03 H-3 µCi/ml	7.0E-05 C-14 µCi/ml	1.0E-06 Sr-90 µCi/ml	1.0E-04 Tc-99 µCi/ml	5.0E-07 I-129 µCi/ml	3.0E-06 Cs-137 µCi/ml	1.0E-07 Ra-226 µCi/ml	4.0E-08 Pu-239 µCi/ml	3.0E-08 Pu-239/40 µCi/ml
On/Off Dates										
01/01/97-12/31/97		4.5E-04 ± 0.0%	4.0E-10 ± 0.0%	5.1E-10 ± 0.0%	7.6E-10 ± 0.0%	2.4E-09 ± 0.0%	<8.3E-09	9.9E-10 ± 0.0%	1.5E-10 ± 0.0%	5.0E-11 ± 0.0%

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

ETF: EFFLUENT TREATMENT FACILITY DISCHARGES (H129)

01/01/97 to 12/31/97

Page 2

05/06/98 12:53	Warning Levels:	3.0E-08 Am-241 µCi/ml	3.0E-08 Total α µCi/ml	1.0E-06 Total β µCi/ml	Waste Stream FlowRate GPM	Volume Liters
On/Off Dates						
01/01/97-12/31/97		1.3E-10 ± 0.0%	1.2E-10 ± 0.0%	7.3E-10 ± 0.0%	27	55369308

SYMBOL KEY: * Concentration exceeds Warning Level (factored DCG). ? Questionable Result - No Peak Detected.

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4.0 DEFINITION FILES USED

This section contains definition files used to generate release and trend reports from the ERS database. Only the portions from each definition file, used to generate reports, are included in this document. For Example, the GROUPS.DEF file contains many facility definitions that are not used for the annual effluent reports, only the portions used for the annual effluent reports are included in this document.

The ERS definition files included are: EIS_ODIS.DEF, DOSE_MOD.DEF, and GROUPS.DEF.

EIS_ODIS.DEF

Sheet 1 of 3

3.019E-06 8 1 R DKR003002A970101971231 16 105-KE STORAGE BASIN ROOF VENTS (Y245-Y248)
 Y245 Y245 Y246 Y247 Y247 Y248 Y248
 1.865E-06 6 1 R DKR003004A970101971231 16 105-KW STORAGE BASIN ROOF VENTS (Y234-Y236)
 Y234 Y234 Y235 Y235 Y236 Y236
 7.103E-09 1 1 R DKR003013A970101971231 16 1706-KER -27 FT LAB EXHAUST (Y244)
 Y244
 4.040E-07 1 1 R DKR003001A970101971231 16 1706-KE LAB EXHAUST (Y243)
 Y243
 6.012E-07 3 1 R AEF151151A970101971231 1 291-A-1, PUREX MAIN STACK (A552)
 A552 A552 A552
 4.642E-07 2 1 R AEF151176A970101971231 2 291-B-1, B-PLANT MAIN STACK (B691)
 B691 B691 B691
 2.949E-08 1 1 R AEF151181A970101971231 2 296-B-5, 221-BB BUILDING EXHAUST (B686)
 B686 B686 B686
 9.142E-07 2 1 R AEF151185A970101971231 2 296-B-10, 225 BUILDING EXHAUST (B748)
 B748 B748 B748
 3.539E-09 1 1 R AEF151184A970101971231 2 296-B-13, 221-BF BCP TANKS & CONDENSATE (B690)
 B690 B690 B690
 0.000E+00 2 1 R AEF151164A970101971231 3 296-A-12, 244-AR VAULT: VESSEL VENT (E058)
 E058 E058 E058
 0.000E+00 1 1 R AEF151165A970101971231 3 296-A-13, 244-AR VAULT: CANYON & CELL (E052)
 E052 E052 E052
 1.416E-07 6 1 R AEF151169A970101971231 3 296-A-17 AND 296-P-26, 241-AY & AX TANKS (E059, E039)
 E059 E059 E059
 2.813E-08 1 1 R AEF151170A970101971231 3 296-A-18, 241-101-AY ANNULUS (E060)
 E060 E060 E060
 4.718E-08 1 1 R AEF151171A970101971231 3 296-A-19, 241-102-AY ANNULUS (E061)
 E061 E061 E061
 0.000E+00 1 1 R AEF151172A970101971231 3 296-A-20, 241-AX T. F. 101, 102-AZ ANNULI (E197)
 E197 E197 E197
 3.244E-09 2 1 R AEF151175A970101971231 3 296-A-25, 244-A LIFT STATION CATCH TANK (E080)
 E080 E080 E080
 7.373E-08 1 1 R AEF151559A970101971231 3 296-A-26, 204-AR WASTE BLDG. EXHAUST (E297)
 E297 E297 E297
 4.424E-08 1 1 R AEF151545A970101971231 3 296-A-27, ALL AN TANK EXHAUSTS (E270)
 E270 E270 E270
 2.300E-07 1 1 R AEF151546A970101971231 3 296-A-28, ALL AN ANNULI (E272)
 E272 E272 E272
 3.244E-08 1 1 R AEF151555A970101971231 3 296-A-29, ALL AN TANK EXHAUSTS (E901)
 E901 E901 E901
 2.182E-07 1 1 R AEF151556A970101971231 3 296-A-30, ALL AN TANK ANNULI EXHAUSTS (E903)
 E903 E903 E903
 4.129E-08 3 1 R AEF151579A970101971231 3 296-A-40, ALL AP TANK EXHAUSTS (E013)
 E013 E013 E013
 3.539E-07 1 1 R AEF151580A970101971231 3 296-A-41, 241-AP TANK FARM ANNULUS (E015)
 E015 E015 E015
 0.000E+00 3 1 R AEF151XXXA970101971231 3 296-A-42 241-AY & AX TANK EXHAUSTS (E147, E152)
 E147 E147 E147
 0.000E+00 1 1 R AEF151XXXA970101971231 3 296-A-43 241-AZ-702 BLDG VENTILATION (E148)
 E148 E148 E148
 1.416E-07 2 1 R AEF151191A970101971231 3 296-C-5, 244-CR VAULT CELL & VESSEL VENT (E069)
 E069 E069 E069
 0.000E+00 3 1 R AEF151600A970101971231 3 296-C-6, TANK C-106 EXHAUSTER (E083)
 E083 E083 E083
 0.000E+00 1 1 R AEF151606A970101971231 3 296-C-7, TANK C-103 VAPOR MIXER EXHAUSTER (E044)
 E044 E044 E044
 1.445E-07 2 1 R AEF151200A970101971231 3 296-P-16, C-105 & C-106 TANK EXHAUST (E068)
 E068 E068 E068
 0.000E+00 2 1 R AEF151196A970101971231 3 296-P-17, 241-105-A TANK VESSEL VENT (E120)
 E120 E120 E120
 4.718E-08 1 1 R AEF151028A970101971231 3 296-P-31, 209-E CRITICALITY LABORATORY EXHAUST (E209)
 E209 E209 E209
 0.000E+00 1 1 R AEF151588A970101971231 3 296-G-1, GROUT, TGE AIR FILTRATION MODULE (E032)
 E032 E032 E032
 0.000E+00 4 1 R AEF151601A970101971231 3 296-P-33 & -34 ROTARY MODE CORE SAMPLERS (E301-E399)
 E307 E307 E307
 5.308E-07 1 1 R AEF151173A970101971231 3 296-A-21, 242-A EVAP/CRYSTALLIZER BLDG. (E645)
 E645 E645 E645
 1.858E-08 3 1 R AEF151174A970101971231 3 296-A-22, 242-A EVAP/CRYSTALLIZER & VESSEL VENT (E643)
 E643 E643 E643
 2.418E-06 1 1 R AEF151036A970101971231 27 296-E-1, EFFLUENT TREATMENT FACILITY (E036)
 E036 E036 E036

EIS_ODIS.DEF (cont.)

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4.186E-09	1 1	R	AWL216232A970101971231	5	296-S-16, 219-S VAULT AND WASTE TANKS EXHAUSTS (S264)
2.093E-06	1 1	R	AWL216227A970101971231	5	296-S-21, 222-S LAB HOODS & HOT CELLS (S289)
2.829E-07	1 1	R	AWT216236A970101971231	6	291-T-1, T-PLANT MAIN STACK (T785)
8.371E-08	1 1	R	ATM216602A970101971231	6	296-T-7, 2706-T BUILDING EXHAUST (T154)
0.000E+00	1 1	R	AWT216249A970101971231	6	296-T-13, T-PLANT VENTILATION AIR (T786)
0.000E+00	1 1	R	AWZ216547A970101971231	29	296-T-11, 224-T BLDG. W FAN EXH. (T783)
4.566E-07	1 1	R	AWZ216248A970101971231	29	296-T-12, 224-T BLDG. E FAN EXH. (T784)
9.142E-09	2 1	R	AEF151569A970101971231	3	296-B-28, 244-BX SALT WELL TANK & ANN. (E886)
2.473E-08	1 1	R	AWF216215A970101971231	8	296-P-22, ALL SY TANK ANNULI (W191)
2.473E-08	2 1	R	AWF216508A970101971231	8	296-P-23 AND 296-P-28, ALL SY TANKS (W190, W195)
9.703E-08	1 1	R	AWF216231A970101971231	8	296-S-15, ALL SX TANKS (W111)
2.093E-07	1 1	R	AWF216234A970101971231	8	296-S-18, 242-S WASTE EVAPORATOR (W096)
3.995E-09	2 1	R	AWF216560A970101971231	8	296-S-22, 244-S SALTWELL RECEIVER & ANNUL. (W880)
0.000E+00	1 1	R	AWF216XXXXA970101971231	8	296-S-25, ALL SY TANKS (W145)
3.234E-08	1 1	R	AWF216253A970101971231	8	296-T-17, 242-T WASTE EVAP. AND CELL EXH. (W117)
6.659E-09	2 1	R	AWF216554A970101971231	8	296-T-18, 244-TX SALT WELL RECEIVER & ANN. (W882)
0.000E+00	2 1	R	AWF216603A970101971231	8	296-U-11, 244-U SALT WELL EXHAUST (W884)
9.323E-09	1 1	R	AWF216589A970101971231	8	296-W-3, 213-W WASTE COMPACTOR (W003)
0.000E+00	1 1	R	AWR216604A970101971231	28	296-W-4, WRAP I, 2336-W BLDG. STACK (W123)
1.408E-06	1 1	R	AWS216010A970101971231	26	696-W-1, WSCF MAIN STACK (W010)
4.186E-08	1 1	R	AWS216011A970101971231	26	696-W-2, WSCF NSL COUNTING ROOM STACK (W011)
2.591E-06	2 1	R	AWZ216271A970101971231	9	291-Z-1, Z-PLANT MAIN STACK (Z810)
2.473E-08	2 1	R	AWZ216274A970101971231	9	296-Z-3, 241-Z SUMP AND V.V. (Z813)
2.854E-07	1 1	R	AWZ216575A970101971231	9	296-Z-5, 2736-ZB BLDG. EXH. (Z913)
2.093E-07	1 1	R	AWZ216543A970101971231	9	296-Z-6, 2736-ZA BUILDING EXHAUST (Z802)
3.805E-08	1 1	R	AWZ216950A970101971231	9	296-Z-14, 232-Z BUILDING EXHAUST (Z814)
3.995E-09	1 1	R	AZL216605A970101971231	9	296-Z-15, 243-Z BUILDING STACK (Z915)
1.154E-06	3 1	R	WLJ106126A970101971231	18	340-NF-EX, 340 TANK VENT (F002)
4.129E-08	1 1	R	WLJ106127A970101971231	18	340-B-BLD, 340 B BUILDING (F008)
4.883E-06	1 1	R	WLJ106128A970101971231	18	340-DECON, 340 DECONTAMINATION FACILITY (F009)
4.439E-05	3 1	R	WLF086086A970101971231	30	EP-324-01-S, 324 BUILDING (F025)
3.241E-05	4 1	R	WLI090909A970101971231	31	EP-327-01-S, 327 BUILDING AIR (F026)
4.883E-07	2 1	R	WLI091091A970101971231	31	EP-327-02-V, 327 BUILDING, DECON. CELL ROOF VENT (F027)
7.832E-07	2 1	R	WTA141003A970101971231	22	FFTF-RE-SB, 417 BLDG. LOWER AREA H&V EXHAUST (F012)
9.481E-07	1 1	R	WTA141004A970101971231	23	437-MN&ST, MASF, 437 BLDG. (F014)
1.278E-06	3 1	R	WTA141001A970101971231	22	FFTF-CB-E, COMBINED EXHAUST, BLDG.S 405, 4621, 4717 (F011)

EIS_ODIS.DEF (cont.)

Sheet 3 of 3

3.298E-07 1 1 R WTA141002A970101971231 22 FFTF-HT-T, 419-S BLDG., H&V DISCHARGE (F013)
 F013
 7.832E-06 2 1 R DNR001002A970101971231 15 116-N STACK (Y211)
 Y211 X211
 6.627E-07 1 1 R DNR001012A970101971231 15 107-N STACK (Y265)
 Y265
 1.807E-07 1 1 R AMR216216A970101971231 13 291-S-1, S-PLANT MAIN STACK (S006)
 S006
 2.093E-08 1 1 R AMR216218A970101971231 13 296-S-2, 202-S NORTH SAMPL. GAL., HOOD, & PR ROOM (S032)
 S032
 2.283E-07 2 1 R AMR216548A970101971231 13 296-S-7W AND 296-S-7E, 233-S REDOX PROD. BLDG (S015, S016)
 S016 S015
 2.350E-07 1 1 R AMU216256A970101971231 14 291-U-1, U-PLANT MAIN STACK (U771)
 U771
 1 2 R DKR003003L970101971231 16 100-K, 1908-K OUTFALL
 Y130
 1 2 R DNR001003L970101971231 15 100-N, N-SPRINGS
 Y101
 5 2 R AEF151329M970101971231 10 216-B-3 POND
 H116 H115 H108 H110 H117
 2 2 R AWL616001M970101971231 27 616-A CRIB
 H129 Q901

DOSE_MOD.DEF

100_AIR 19 2 Radionuclides Discharged to the Atmosphere from 100 Areas
Y243 Y244 Y265 Y211 X211 Y234 X234 Y235 X235 Y236 X236 Y245 X245
Y246 X246 Y247 X247 Y248 X248

200E_AIR 59 2 Radionuclides Discharged to the Atmosphere from 200-East Area
B686 B690 E015 E032 E036 E044 E052 E060 E061 E148 E197 E209 E270
E272 E297 E645 E901 E903 A007 A552 X552 B691 X691 B748 X748 E013
E028 X013 E058 X058 E059 E026 X059 E039 E040 X039 E068 X068 E069
X069 E080 X080 E083 E084 X083 E120 X120 E147 E152 X147 E307 X307
E308 X308 E643 E001 X643 E886 X886

200W_AIR 37 2 Radionuclides Discharged to the Atmosphere from 200-West Area
S006 S015 S016 S032 S264 S289 T154 T783 T784 T785 T786 U771 W003
W010 W011 W096 W111 W117 W123 W145 W190 W191 W195 Z802 Z814 Z913
Z915 W880 X880 W882 X882 W884 X884 Z810 X810 Z813 X813

300_AIR 14 2 Radionuclides Discharged to the Atmosphere from the 300 Area
F008 F009 F002 F017 F602 F025 F028 F603 F026 F029 F604 Q900 F027
F605

400_AIR 8 2 Radionuclides Discharged to the Atmosphere from the 400 Area
F011 F012 F013 F014 F019 F016 F018 F024

100_WATER 2 2 Radionuclides Discharged to the Columbia River from 100 Areas
Y101 Y130

200_WATER 7 2 Radionuclides Discharged to Ground from 200 Areas
H108 H110 H115 H116 H117 H129 Q901

300_WATER 1 2 Radionuclides Discharged to Ground from 300 Areas
F021

100_10M 17 2 100 Area Ground Level Releases (< 60 m)
Y243 Y244 Y265 Y234 X234 Y235 X235 Y236 X236 Y245 X245 Y246 X246
Y247 X247 Y248 X248

100_60M 2 2 100 Area Elevated Releases (> 60 m)
Y211 X211

200E_10M 54 2 200-E Area Ground Level Releases (< 60 m)
B686 B690 E015 E032 E036 E044 E052 E060 E061 E148 E197 E209 E270
E272 E297 E645 E901 E903 B748 X748 E013 E028 X013 E058 X058 E059
E026 X059 E039 E040 X039 E068 X068 E069 X069 E080 X080 E083 E084
X083 E120 X120 E147 E152 X147 E307 X307 E308 X308 E643 E001 X643
E886 X886

200E_60M 5 2 200-E Area Elevated Releases (> 60 m)
A007 A552 X552 B691 X691

200W_10M 32 2 200-W Area Ground Level Releases (< 60 m)
S015 S016 S032 S264 S289 T154 T783 T784 T786 W003 W010 W011 W096
W111 W117 W123 W145 W190 W191 W195 Z802 Z814 Z913 Z915 W880 X880
W882 X882 W884 X884 Z813 X813

200W_60M 5 2 200-W Area Elevated Releases (> 60 m)
S006 T785 U771 Z810 X810

300_10M 11 2 300 Area Ground Level Releases (< 48 m)
F008 F009 F002 F017 F602 F026 F029 F604 Q900 F027 F605

300_48M 3 2 300 Area Elevated Releases (> 48 m)
F025 F028 F603

GROUPS.DEF

296-A-17 6 2 296-A-17 & 296-P-26: 241-AZ, AZ TANK EXHAUSTERS (E059, E039)
 E059 E026 X059 E039 E040 X039
 296-P-23 4 2 296-P-23 & 296-P-28: EXHAUSTERS FOR ALL SY TANKS (W190, W195)
 W190 X190 W195 X195
 296-S-7W 2 2 296-S-7W & 296-S-7E: 233-S BUILDING EXHAUSTERS (S016, S015)
 S016 S015

5.0 ERS FILE SETUPS

The ERS files setup data is contained in the audit reports for the airborne and liquid effluent EDP codes. This section contains the audit files for the radioactive airborne and liquid effluent streams.

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5.1 Audit Report for Air Effluent Files

05/06/98

ACTIVE FILES

EDP Code	Medium /Data Type	Waste Stream or Stack Code	File Title	Release Factor	Dose Modeling Substitutions		Associated Files			
					Alpha	Beta				
1. A007	1/2	291-A-1	291-A-1 Purex Main Stack, Primary AgZ	0.87			A552	X552	A940	A566
2. A550	1/1	296-A-10	PUREX EQUIPMENT DISPOSAL TUNNEL 2	0.73	Pu239/40	Sr-90				
3. A552	1/1	291-A-1	PUREX MAIN STACK	0.52			A007	X552	A940	A566
4. A566	1/5	291-A-1	PUREX MAIN STACK	0.73			A552	A007	X552	A940
5. A940	1/4	291-A-1	PUREX MAIN STACK	0.91			A552	A007	X552	A566
6. B686	1/1	296-B-5	221-BB BUILDING EXHAUST	0.73	Pu239/40	Sr-90				
7. B690	1/1	296-B-13	221-BF BCP TANKS & CONDENSATE	0.62	Pu239/40	Sr-90				
8. B691	1/1	291-B-1	221-B BLDG & CANYON (B-PLANT MAIN STK)	0.78			X691			
9. B698	1/1	296-B-14	221-B VESSEL VENT. SYSTEM #2	0.73	Pu239/40	Sr-90				
10. B748	1/1	296-B-10	225-B BUILDING & CELLS	0.78			X748			
11. E001	1/2	296-A-22	242-A EVAPORATOR	0.87			E643	X643		
12. E013	1/1	296-A-40	241-AP TANK FARM EXHAUST	0.80			E028	X013		
13. E015	1/1	296-A-41	241-AP TANK FARM ANNULUS	0.80	Pu239/40	Sr-90				
14. E026	1/2	296-A-17	241-AY,AZ TANKS	0.87			E059	X059		
15. E028	1/2	296-A-40	241-AP TANK FARM EXHAUST	0.87			E013	X013		
16. E032	1/1	296-G-1	TGE AIR FILTRATION MODULE (243-G-8)	0.73	Pu239/40	Sr-90				
17. E036	1/1	296-E-1	ETF Stack	0.73	Pu239/40	Sr-90				
18. E037	1/1	296-P-41	296-P-41	0.73						
19. E039	1/1	296-P-26	241-AY,AZ EXHAUSTER (Backup to 296-A-17)	0.84			E040	X039		
20. E040*	1/2	296-P-26	241-AY,AZ EXHAUSTER (Backup to 296-A-17)	0.87			E039	X039		
21. E044	1/1	296-C-7	TANK 241-C-103 VAPOR MIXER EXHAUSTER	0.73	Pu239/40	Sr-90				
22. E052	1/1	296-A-13	244-AR VAULT: CANYON & CELL	0.66	Pu239/40	Sr-90				
23. E058	1/1	296-A-12	244-AR VAULT: VESSEL VENT	0.72			X058			
24. E059	1/1	296-A-17	241-AY,AZ TANKS	0.71			E026	X059		
25. E060	1/1	296-A-18	101-AY ANNULUS	0.73	Pu239/40	Sr-90				

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ACTIVE FILES

	EDP Code	Medium /Data Type	Waste Stream or Stack Code	File Title	Release Factor	Dose Modeling Substitutions Alpha	Beta	Associated Files
26.	E061	1/1	296-A-19	102-AZ ANNULUS	0.73	Pu239/40	Sr-90	
27.	E068	1/1	296-P-16	105-C & 106-C TANK EXHAUSTER	0.79			X068
28.	E069	1/1	296-C-5	244-CR VAULT CELL & VESSEL VENT	0.83			X069
29.	E080	1/1	296-A-25	244-A LIFT STATION CATCH TANK	0.81			X080
30.	E083	1/1	296-C-6	296-C-6 STACK SAMPLER	0.73			E084 X083
31.	E084*	1/2	296-C-6	296-C-6 STACK SAMPLER	0.87			E083 X083
32.	E120	1/1	296-P-17	105-A TANK VESSEL VENT	0.79			X120
33.	E147	1/1	296-A-42	296-A-42	0.73			E152 X147
34.	E148	1/1	296-A-43	296-A-43	0.73	Pu239/40	Sr-90	
35.	E152*	1/2	296-A-42	296-A-42	0.87			E147 X147
36.	E197	1/1	296-A-20	ALL AZ ANNULI	0.84	Pu239/40	Sr-90	
37.	E209	1/1	296-P-31	209-E CRITICALITY LABORATORY EXHAUST	0.91	Pu239/40	Sr-90	
38.	E270	1/1	296-A-27	ALL AW TANKS	0.52			E933 X270
39.	E272	1/1	296-A-28	ALL AW ANNULI	0.47	Pu239/40	Sr-90	
40.	E297	1/1	296-A-26	204-AR WASTE UNLOADING FACILITY	0.73	Pu239/40	Sr-90	
41.	E301*	1/1	ROTMOD	ROTARY MODE CORE SAMPLER(S) STACK	0.73			X301
42.	E302*	1/1	ROTMOD	ROTARY MODE CORE SAMPLER(S) STACK	0.73			X302
43.	E303	1/1	ROTMOD	ROTARY MODE CORE SAMPLER(S) STACK	0.73	Pu239/40	Sr-90	X303
44.	E304	1/1	ROTMOD	ROTARY MODE CORE SAMPLER(S) STACK	0.73	Pu239/40	Sr-90	X304
45.	E305	1/1	ROTMOD	ROTARY MODE CORE SAMPLER(S) STACK	0.73	Pu239/40	Sr-90	X305
46.	E306	1/1	ROTMOD	ROTARY MODE CORE SAMPLER(S) STACK	0.73	Pu239/40	Sr-90	X306
47.	E307	1/1	296-P-33	296-P-33 ROTARY MODE CORE SAMPLER STACK	0.73			X307
48.	E308	1/1	296-P-34	296-P-34 ROTARY MODE CORE SAMPLER STACK	0.73			X308
49.	E401	1/1	296-P-32	296-P-32 244-AR Vessel Vent	0.73			X401
50.	E643	1/1	296-A-22	242-A EVAPORATOR	0.79			E001 X643

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ACTIVE FILES

EDP Code	Medium /Data Type	Waste Stream or Stack Code	File Title	Release Factor	Dose Modeling Substitutions		Associated Files
					Alpha	Beta	
51. E645	1/1	296-A-21	242-A BUILDING EXHAUST	0.79	Pu239/40	Sr-90	X645
52. E886	1/1	296-B-28	244-BX SALT WELL RECEIVER & ANN.	0.72			X886
53. E901	1/1	296-A-29	ALL AN TANKS	0.53	Pu239/40	Sr-90	X901
54. E903	1/1	296-A-30	241-AN ALL ANNULI	0.55	Pu239/40	Sr-90	
55. E933	1/2	296-A-27	ALL AW TANKS	0.87			E270 X270
56. F001	1/1	304-CON-E	304 Concretion Exhaust	0.73	Total U	Sr-90	
57. F002	1/1	340-NT-EX	340 Vault Tank Vent Exhaust	0.87			F017 F602
58. F003	1/1	306E-ULAB	306 Facility	0.73	Total U	Sr-90	
59. F004	1/1	308-GL-EX	308 E-4-5	0.91	Pu239/40	Sr-90	
60. F005	1/1	308-ET-EX	308 E-6-7	0.81	Pu239/40	Sr-90	
61. F006	1/1	308-TRIGA	308 E-8-9	0.41	Pu239/40	Sr-90	F007
62. F007	1/2	308-TRIGA	308 E-8-9 (Charcoal)	0.87			F006
63. F008	1/1	340-B-BLD	340 B BUILDING	0.73	Pu239/40	Sr-90	
64. F009	1/1	340-DECON	340 DECONTAMINATION FACILITY	0.73	Pu239/40	Sr-90	
65. F010	1/1	377-GEL	377 GEOTECHNICAL ENGINEERING LABORATORY	0.73	Pu239/40	Sr-90	
66. F011	1/1	FFTF-CB-E	FFTF COMBINED EXHAUST	0.73	Pu239/40	Cs-137	F018
67. F012	1/1	FFTF-RESB	FFTF LOWER REACTOR SERVICE BUILDING	0.73	Pu239/40	Cs-137	F016
68. F013	1/1	FFTF-HT-T	FFTF REACTOR HEAT TRANSPORT SYSTEM	0.73	Pu239/40	Cs-137	
69. F014	1/1	437-MN&ST	MASF 437-MN&ST	0.65	Pu239/40	Cs-137	
70. F015	1/1	12632	309 Facility PTRAEU	0.73	Pu239/40	Sr-90	
71. F016	1/2	FFTF-RESB	FFTF Lower Reactor Service Building I-131	0.87			F012
72. F017	1/2	340-NT-EX	340 Vault Tank Exhaust I-131 Charcoal Cart	0.87			F002 F602
73. F018	1/2	FFTF-CB-E	FFTF Combined Exhaust I-131	0.87			F011
74. F019	1/1	437-1-61	MASF 437-1-61	0.73	Pu239/40	Cs-137	
75. F024	1/4	FFTF-CB-E	FFTF Combined Exhaust H-3 (HTO)	0.87			F011 F018

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ACTIVE FILES

EDP Code	Medium /Data Type	Waste Stream or Stack Code	File Title	Release Factor	Dose Modeling Substitutions Alpha	Beta	Associated Files
76. F025	1/1	EP32401S	324 BUILDING STACK: Particulate	0.86			F603 F028
77. F026	1/1	EP32701S	327 Building	0.86			F604 F029
78. F027	1/1	EP32702V	327 BUILDING, DECON. CELL ROOF VENT: Part.	0.88			F605
79. F028	1/4	EP32401S	324 BUILDING STACK: H-3 (HTO)	0.87			F025 F603
80. F029	1/4	EP32701S	327 BUILDING AIR, STACK: H-3 (HTO)	0.87			F026 F604
81. F030	1/1	309-PRTR	309-PRTR	0.73			
82. F031	1/1	EP32401	324 BUILDING STACK: H-3 (HT)	0.87			
83. F032	1/1	EP32701	327 BUILDING STACK: H-3 (HT)	0.87			
84. F602	1/3	340-NT-EX	340 Vault Tank Exhaust Quarterly Composite	0.87			F002 F017
85. F603	1/3	EP32401S	324 BUILDING STACK: Composite	0.86			F025 F028
86. F604	1/3	EP32701S	327 BUILDING AIR, STACK: Composite	0.86			F026 F029
87. F605	1/3	EP32702V	327 BUILDING, DECON. CELL ROOF VENT: Comp.	0.73			F027
88. Q066*	1/3	TEST-Q066	Test File	0.54			Q065
89. Q069*	1/1	TEST01	Dummy Test File - For Testing Dummies	1.00			
90. Q101	1/1	TEST-02	New Title	0.92			Q102
91. Q102*	1/3	TEST01	Composites Test File	0.69			Q101
92. Q104*	1/1	TEST90	Test File Created by ERS V4 (Fortran 90)	0.99			
93. Q900	1/1	EP32701-S	EP-327-01-S STACK: Rn-220 & Rn-222	1.00			
94. S006	1/1	291-S-1	202-S CANYON EXHAUST	0.73	Pu239/40	Sr-90	X006
95. S015	1/1	296-S-7E	233-S Building Exhaust, East	0.73	Pu239/40	Sr-90	
96. S016	1/1	296-S-7W	233-S BUILDING EXHAUST	0.85	Pu239/40	Sr-90	X016
97. S032	1/1	296-S-2	202-S NORTH SAMPL. GAL., HOOD, & PR ROOM	0.73	Pu239/40	Sr-90	
98. S264	1/1	296-S-16	219-S WASTE TANKS	0.73	Pu239/40	Sr-90	
99. S289	1/1	296-S-21	222-S LAB EXHAUST	0.73	Pu239/40	Sr-90	X289
100. T154	1/1	296-T-7	2706-T Stack	0.70	Pu239/40	Sr-90	

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ACTIVE FILES

	EDP Code	Medium /Data Type	Waste Stream or Stack Code	File Title	Release Factor	Dose Modeling Substitutions		Associated Files
						Alpha	Beta	
101.	T783	1/1	296-T-11	224-T BUILDING EXHAUST/WEST	0.76	Pu239/40	Sr-90	X783
102.	T784	1/1	296-T-12	224-T BUILDING EXHAUST/EAST	0.76	Pu239/40	Sr-90	X784
103.	T785	1/1	291-T-1	221-T CANYON & CELLS	0.79	Pu239/40	Sr-90	X785
104.	T786	1/1	296-T-13	221-T CANYON EXHAUST - ROOF EXHAUSTER	0.79	Pu239/40	Sr-90	X786
105.	U771	1/1	291-U-1	221-U CANYON & CELLS	0.73	Pu239/40	Sr-90	X771
106.	W003	1/1	296-W-3	213-W WASTE COMPACTOR	0.73	Pu239/40	Sr-90	
107.	W010	1/1	696-W-1	WSCF LABORATORY MAIN STACK EXHAUST	0.73	Pu239/40	Sr-90	
108.	W011	1/1	696-W-2	WSCF, NSL COUNTING ROOM EXHAUSTER	0.73	Pu239/40	Sr-90	
109.	W096	1/1	296-S-18	242-S BUILDING EXHAUST	0.69	Pu239/40	Sr-90	X096
110.	W111	1/1	296-S-15	EXHAUSTER FOR ALL SX TANKS	0.84	Pu239/40	Sr-90	X111
111.	W117	1/1	296-T-17	242-T CELLS	0.81	Pu239/40	Sr-90	
112.	W123*	1/1	296-W-4	WRAP-I STACK	0.73			X123
113.	W145	1/1	296-S-25	EXHAUSTER FOR ALL SY TANKS	0.72	Pu239/40	Sr-90	X145
114.	W190	1/1	296-P-23	EXHAUSTER FOR ALL SY TANKS	0.79	Pu239/40	Sr-90	X190
115.	W191	1/1	296-P-22	ALL SY ANNULI	0.80	Pu239/40	Sr-90	
116.	W195	1/1	296-P-28	BACKUP EXHAUSTER FOR ALL SY TANKS	0.76	Pu239/40	Sr-90	X195
117.	W880	1/1	296-S-22	244-S SALTWELL RECEIVER & ANNUL.	0.72			X880
118.	W882	1/1	296-T-18	244-TX SALT WELL RECEIVER & ANN.	0.70			X882
119.	W884	1/1	296-U-11	296-U-11 STACK SAMPLER	0.73			X884
120.	X006	1/3	291-S-1	202-S CANYON EXHAUST	0.73			S006
121.	X013	1/3	296-A-40	241-AP TANK FARM EXHAUST	0.80			E013 E028
122.	X016	1/3	296-S-7W	233-S BUILDING EXHAUST	0.77			S016
123.	X039	1/3	296-P-26	241-AY,AZ EXHAUSTER (Backup to 296-A-17)	0.84			E039 E040
124.	X058*	1/3	296-A-12	296-A-12 STACK SAMPLER	0.72			E058
125.	X059	1/3	296-A-17	241-AY,AZ TANKS	0.71			E059 E026

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ACTIVE FILES

EDP Code	Medium Waste Stream /Data Type	or Stack Code	File Title	Release Factor	Dose Modeling Substitutions Alpha Beta	Associated Files
126. X068	1/3	296-P-16	105-C & 106-C TANK EXHAUSTER	0.79		E068
127. X069	1/3	296-C-5	244-CR VAULT CELL & VESSEL VENT	0.83		E069
128. X080	1/3	296-A-25	244-A LIFT STATION CATCH TANK	0.81		E080
129. X083*	1/3	296-C-6	296-C-6 STACK SAMPLER	0.73		E083 E084
130. X096	1/3	296-S-18	242-S BUILDING EXHAUST	0.69		W096
131. X111	1/3	296-S-15	EXHAUSTER FOR ALL SX TANKS	0.84		W111
132. X120*	1/3	296-P-17	296-P-17 STACK SAMPLER	0.79		E120
133. X123*	1/3	296-W-4	WRAP-I	0.73		W123
134. X145*	1/3	296-S-25	EXHAUSTER FOR ALL SY TANKS	0.72		W145
135. X147*	1/3	296-A-42	296-A-42	0.73		E147 E152
136. X190	1/3	296-P-23	EXHAUSTER FOR ALL SY TANKS	0.79		W190
137. X195	1/3	296-P-28	BACKUP EXHAUSTER FOR ALL SY TANKS	0.76		W195
138. X211	1/3	1AN116	116-N STACK PARTICULATE	0.73		Y211
139. X234	1/3	100-K-5W	105-KW BASIN ROOF VENTS	0.91		Y234
140. X235	1/3	100-K-5W	KW LOW BAY WEST (RV10)	0.91		Y235
141. X236	1/3	100-K-5W	KW MEZZ (RV 6&7)	0.91		Y236
142. X243	1/3	100-K-LAB	1706-KE Lab Exhaust	0.73		Y243
143. X244	1/3	100-K-KER	1706-KER -27 ft Lab Exhaust	0.73		Y244
144. X245	1/3	100-K-5E	105-KE BASIN ROOF VENTS	0.91		Y245
145. X246	1/3	100-K-5E	KE LOW BAY WEST (RV10)	0.91		Y246
146. X247	1/3	100-K-5E	KE NORTH MEZZANINE (RV7)	0.91		Y247
147. X248	1/3	100-K-5E	KE SOUTH MEZZANINE (RV6)	0.91		Y248
148. X270	1/3	296-A-27	ALL AW TANKS	0.52		E933
149. X289	1/3	296-S-21	222-S LAB EXHAUST	0.73		S289
150. X301*	1/3	ROTMOD	ROTARY MODE CORE SAMPLER(S) STACK	0.73		E301

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ACTIVE FILES

	EDP Code	Medium /Data Type	Waste Stream or Stack Code	File Title	Release Factor	Dose Modeling Substitutions		Associated Files		
						Alpha	Beta			
151.	X302*	1/3	ROTMOD	ROTARY MODE CORE SAMPLER(S) STACK	0.73			E302		
152.	X303	1/3	ROTMOD	ROTARY MODE CORE SAMPLER(S) STACK	0.73			E303		
153.	X304	1/3	ROTMOD	ROTARY MODE CORE SAMPLER(S) STACK	0.73			E304		
154.	X305	1/3	ROTMOD	ROTARY MODE CORE SAMPLER(S) STACK	0.73			E305		
155.	X306	1/3	ROTMOD	ROTARY MODE CORE SAMPLER(S) STACK	0.73			E306		
156.	X307	1/3	296-P-33	296-P-33 ROTARY MODE CORE SAMPLER STACK	0.73			E307		
157.	X308*	1/3	296-P-34	296-P-34 ROTARY MODE CORE SAMPLER STACK	0.73			E308		
158.	X401*	1/3	296-P-32	296-P-32 244-AR STACK	1.00			E401		
159.	X552	1/3	291-A-1	PUREX MAIN STACK (QC)	0.52			A552	A007	A940 A566
160.	X643	1/3	296-A-22	242-A EVAP/CRYSTALLIZER AND V.V.	0.79			E643	E001	
161.	X645	1/3	296-A-21	242-A BUILDING EXHAUST	0.79			E645		
162.	X691	1/3	291-B-1	221-B BLDG & CANYON (B-PLANT MAIN STK)	0.78			8691		
163.	X748	1/3	296-B-10	225-B BUILDING & CELLS	0.78			8748		
164.	X771	1/3	291-U-1	221-U CANYON & CELLS	0.73			U771		
165.	X783	1/3	296-T-11	224-T BUILDING EXHAUST/WEST	0.73			T783		
166.	X784	1/3	296-T-12	224-T BUILDING EXHAUST/EAST	0.73			T784		
167.	X785	1/3	291-T-1	221-T CANYON & CELLS	0.79			T785		
168.	X786	1/3	296-T-13	221-T CANYON EXHAUST - ROOF EXHAUSTER	0.73			T786		
169.	X810	1/3	291-Z-1	232-Z, 234-5, 236-Z, 242-Z PROCESS & VENT	0.86			Z810		
170.	X813	1/3	296-Z-3	241-Z SUMP & VESSEL VENTS	0.73			Z813		
171.	X880	1/3	296-S-22	244-S SALTWELL RECIEVER & ANNULUS	0.72			W880		
172.	X882	1/3	296-T-18	244-TX SALT WELL RECEIVER & ANNULUS	0.70			W882		
173.	X884*	1/3	296-U-11	296-U-11 STACK SAMPLER	0.73			W884		
174.	X886	1/3	296-B-28	296-B-28 STACK SAMPLER	0.72			E886		
175.	X901	1/3	296-A-29	ALL AN TANKS	0.53			E901		

05/06/98

ACTIVE FILES

	EDP Code	Medium Waste Stream		File Title	Release Factor	Dose Modeling Substitutions		Associated Files
		/Data Type	or Stack Code			Alpha	Beta	
176.	X913	1/3	296-Z-5	2736-ZB BUILDING EXHAUST	0.73			Z913
177.	Y211	1/1	1AN116	116-N STACK PARTICULATE	0.73			X211
178.	Y212	1/1	1AN116	116-N STACK CHARCOAL	0.73			
179.	Y213	1/1	1AN116	116-N STACK (NOBLE GASES)	0.73			
180.	Y214	1/1	EAL	EAL HO-64-4276	0.73	Pu239/40	Sr-90	
181.	Y215	1/1	EAL	EAL HO-64-4230	0.73	Pu239/40	Sr-90	
182.	Y234	1/1	100-K-5W	KW LOW BAY EAST (RV 11)	0.91			X234
183.	Y235	1/1	100-K-5W	KW LOW BAY WEST (RV 10)	0.91			X235
184.	Y236	1/1	100-K-5W	KW MEZZ. (RV 6&7)	0.91			X236
185.	Y243	1/1	100-K-LAB	1706-KE Lab Exhaust	0.73	Pu239/40	Sr-90	X243
186.	Y244	1/1	100-K-KER	1706-KER -27 ft Lab Exhaust	0.73	Pu239/40	Sr-90	X244
187.	Y245	1/1	100-K-5E	KE LOW BAY EAST (RV11)	0.91			X245
188.	Y246	1/1	100-K-5E	KE LOW BAY WEST (RV10)	0.91			X246
189.	Y247	1/1	100-K-5E	KE NORTH MEZZANINE (RV7)	0.91			X247
190.	Y248	1/1	100-K-5E	KE South Mezzanine (RV 6)	0.91			X248
191.	Y265	1/1	1AN07ROOF	107-N EXHAUST PARTICULATE	0.73	Pu239/40	Sr-90	
192.	Y266	1/1	1AN07ROOF	107-N EXHAUST CHARCOAL	0.73			
193.	Z370*	1/1	296-Z-10	296-Z-10 STACK, 231-Z BUILDING	0.73	Pu239/40	Sr-90	
194.	Z802	1/1	296-Z-6	2736-ZA BUILDING EXHAUST	0.73	Pu239/40	Sr-90	
195.	Z810	1/1	291-Z-1	232-Z, 234-5, 236-Z, 242-Z PROCESS & VENT	0.86		Sr-90	X810
196.	Z813	1/1	296-Z-3	241-Z SUMP & VESSEL VENTS	0.90		Sr-90	X813
197.	Z814	1/1	296-Z-14	232-Z BUILDING EXHAUST	0.73	Pu239/40	Sr-90	
198.	Z913	1/1	296-Z-5	2736-ZB BUILDING EXHAUST	0.73	Pu239/40	Sr-90	X913
199.	Z915	1/1	296-Z-15	243-Z LOW LEVEL WASTE WATER TREATMENT FACI	0.73	Pu239/40	Sr-90	

* Denotes empty file.

Note: Sample Media are: 1 (Eff. Air), 2 (Eff. Liquid), 3 (Env. Air), 4 (Env. Liquid), 5 (Soil), and 6 (Vegetation)

Note: Data Types are 1 (a/b), 2 (AgZ), 3 (Composites), 4 (C14/H3), and 5 (Pb212 and Decay Daughters)

Total: 199 files, of which 22 are empty.

5.2 Audit Report for Liquid Effluent Files

05/06/98

ACTIVE FILES

EDP Code	Medium /Data Type	Waste Stream or Stack Code	File Title	Release Factor	Dose Modeling Substitutions Alpha	Beta	Associated Files
1. H108	2/N	ACW	242-A EVAPORATOR COOLING WATER	1.00			
2. H110	2/N	ASC	242-A EVAPORATOR STEAM CONDENSATE	1.00			
3. H115	2/N	CA8	241-A TANK FARM COOLING WATER	1.00			
4. H116	2/N	CAR	244-AR VAULT COOLING WATER	1.00			
5. H117	2/N	CBC	B-PLANT COOLING WATER	1.00			
6. H129	2/N	ETF	EFFLUENT TREATMENT FACILITY DISCHARGES	1.00			
7. Q110	2/N	STREAM_XX	Liquids Dummy Test File	1.00			
8. Q901	2/N	ETFX	EFFLUENT TREATMENT FACILITY Np-237 DISCHAR	1.00			
9. Y101	2/N	1LN130	100-N AREA RIVER SPRINGS (Y101) WELL N-46	1.00			
10. Y120	2/N	1LN009M	102" LINE - (MONTHLY)	1.00			
11. Y121	2/N	1LN009	102" LINE - PARTICULATE	1.00			
12. Y122	2/A	1LN009R	102" LINE - CATIONIC	1.00			
13. Y123	2/A	1LN009	102" LINE - ANIONIC	1.00			
14. Y130	2/N	1LK004	1908-K OUTFALL	1.00			

Note: Sample Media are: 1 (Eff. Air), 2 (Eff. Liquid), 3 (Env. Air), 4 (Env. Liquid), 5 (Soil), and 6 (Vegetation)

Note: Data Types are N (Normal) and D (Duplicate)

Total: 14 files, of which 0 are empty.

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6.0 CALCULATIONS

In 1997, ^{220}Rn and ^{222}Rn effluent data were collected from the EP-327-01-S stack, located in the 300 Area. The data was obtained from an online radon gas monitoring system located on the stack. Unlike most record sampling systems, this system does not collect samples for laboratory analysis. Grab samples are periodically collected and counted by the monitor, which logs data in the units of total counts per interval. The ERS database is only capable of calculating releases using the effluent concentrations and stack operating data. As a result, the ^{220}Rn and ^{222}Rn concentrations were calculated independently of the ERS database and documented in Section 6.1. The ERS database was then used to calculate the releases, using the concentration data in Section 6.1.

Independent calculations are performed for a representative number of point sources and nuclides, to validate the release calculations that the ERS database performs. Point sources selected for validating the CY-1997 calculations included the 116-N, 296-A-17, 296-P-26, 296-A-18, 296-A-19, 296-A-25, 296-A-28, 296-A-30, 296-A-41, 296-S-15, 296-S-22, and 296-T-18 stacks. These calculations are documented in Section 6.2.

The 296-P-32 stack operated for a total of four hours during 1997. No 1997 sample data was collected from this stack. A sample from this stack was collected in January of 1998 and used to estimate the 1997 releases from this stack. The ERS database is only designed to calculate releases for a given calendar year using the effluent data for that calendar year. As a result, the database is not capable of using the 1998 data to calculate the 1997 releases. The releases from the 296-P-32 stack were calculated independently of the ERS database and have been documented in Section 6.3.

The 1997 Releases for the RCF-1-EX emission unit, at BHI's Radiological Counting Facility, were not calculated using the ERS database, because of some differences with the analytical data. The releases from this emission unit were calculated independently of the ERS database and have been documented in Section 6.4.

Weighted stack flow rates, for the 296-T-7 stack, were calculated independently of the ERS database and documented in Section 6.5.

It was mistakenly indicated in the 1996 effluent reports that the 296-T-7 stack did not operate during the periods of 5/02/96 through 5/07/96 and 10/31/96 through 12/31/96, when the stack actually operated intermittently during this period. The 296-T-7 stack releases for 1996 have been recalculated and are documented in Section 6.6.

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6.1 ^{220}Rn and ^{222}Rn Calculations

**RADON AND THORON GAS CONCENTRATIONS
FOR THE EP-327-01-S STACK USING A
RADON MONITOR OPERATING IN QUASI-CONTINUOUS SAMPLING MODE**

The method for using the Pylon Electronic Development Company's Model AB-5 Portable Radiation Monitor equipped with a Model 300A Lucas Cell for measuring Rn-220 and Rn-222 gas concentrations from the EP-327-01-S Stack is discussed below. The historical names of these isotopes are thoron (Rn-220) and radon (Rn-222). However, references to "radon" in this text refers to the name of the element rather than the historical name of the isotope. As a result, all references to "radon" are inclusive of both Rn-220 and Rn-222.

The AB-5 units and Lucas cells were calibrated using a Rn-222 standard, determining the monitors' efficiency for Rn-222. The monitors were not calibrated using a Rn-220 standard. The monitors' efficiency for Rn-220 is estimated by summing the alpha energies of the radon isotope and its short-lived alpha emitting progeny. The ratio of the Rn-220 to Rn-222 total alpha energies was multiplied by monitor's efficiency for Rn-222 to get the approximate efficiency for Rn-220.

Table 1

ALPHA ENERGY DATA FOR RADON ISOTOPES AND THEIR SHORT-LIVED PROGENY	
Nuclide	Alpha Energy (keV)
Rn-220	6288.3
Po-216	6778.5
Total Alpha Energy	13066.8
Rn-222	6556.0
Po-218	6002.6
Po-214	7687.1
Total Alpha Energy	20245.7

$$\epsilon_{220} = (0.6454) \epsilon_{222} = \left(\frac{13066.8 \text{ keV}}{20245.7 \text{ keV}} \right) \epsilon_{222}$$

A background count was taken as part of the calibration. This background count was used for all calculations, since background counts were not obtained in between cycles or runs. A review of the data indicated that the buildup of the long-lived radon progeny did not significantly raise the background count for the Lucas cells. The data from the 6th interval is the least influenced from the sample, since the Rn-220 and its progeny had decayed and the Rn-222 is far from reaching equilibrium with its progeny. An examination and comparison of the 6th interval data, from each Lucas cell after many cycles of continuous use and a newly installed Lucas cell, indicated there were no noticeable differences. This indicated that the buildup of the long-lived radon progeny did not have a significant impact on the background of the Lucas cells, during CY-1997.

The monitor was operated in the quasi-continuous sampling mode, in which the monitor collects a grab sample and measures the radioactivity during 98 sequential counting intervals. There are a total of 99 intervals in a cycle, the first interval of every cycle is always a sampling interval and the remaining 98 intervals are counting intervals. The duration of the sampling and counting intervals is 3 minutes each, making the cycle duration 297 minutes.

A run is a set of data from one or more cycles. Periodically data is downloaded from a data logger ending a specific run. Once the data is downloaded, a new run is started. Runs are typically about 7 days worth of data. The data from 17 runs was used to estimate the CY-1997 radon emissions. Only the data from the first 5 cycles of each run were used to estimate radon concentrations, since approximately 693 cycles were completed with 98 counting intervals of data per cycle. This equates to an unnecessary and extremely difficult amount of data to manage and process, there is a total of approximately 67,914 intervals with sample data for CY-1997. The approach, of only using 17 runs and 5 cycles from each run, is equivalent to collecting 5 equally spaced grab samples over a 24 hour period, once each week.

Data from 5 consecutive cycles was used to represent a 24 hour period. The data from the 5 cycles was used to calculate the daily average radon concentrations, such that diurnal variations are represented.

The sample is collected during the 1st interval of each cycle. The Rn-220 requires only 1 second to reach equilibrium with its short-lived alpha emitting progeny. Upon examining the data, there wasn't a noticeable difference between the counts registered in the 3rd interval and the remaining intervals. As a result, only the counts from the 2nd interval were used to calculate the Rn-220 concentration. The number of Rn-222 atoms decaying during the second interval were insignificant, $< 0.1\%$ of the Rn-222 atoms present, but were accounted for in the equations which were used. All of the Rn-220 and its short-lived alpha emitting progeny will decay within 10 minutes, such that none will remain for the subsequent counting intervals.

The Rn-222 requires 3.5 hours to reach equilibrium with its short-lived progeny. The counts from the 80th through the 99th interval were used to calculate the Rn-222 concentration. The data from more than one counting interval was used to determine the Rn-222 concentration, since Rn-222 has a much longer half-life than Rn-220 and has fewer decays

during a 3 minute interval. Using the data from several intervals improves the accuracy of the measurement, especially at low concentrations. The uncertainty of the measurement is improved by using data from more than one interval.

The decay corrected Rn-222 concentration associated with each cycle was calculated first. The Rn-222 contribution to the counts registered in the 2nd interval can then be calculated and subtracted from the gross counts, leaving only the counts from Rn-220 decay and background. The decay corrected Rn-220 concentration can then be calculated.

The Rn-220 concentration measured by the monitor requires an additional correction, since the travel time from the stack's sample probe to the monitor is significant. Rn-220 provides the mechanism for radioactive material to get past the stack's HEPA filters. Its half-life is too short to reach any offsite receptors. As a result, Rn-220 releases are modelled as Pb-212 releases, since Pb-212 is the decay product which causes nearly all of the dose from Rn-220 releases. The travel time from the stack's sample probe to the downstream side of the HEPA filter is also significant. To accurately estimate the Rn-220 passing through the HEPA filter requires a decay correction for this travel time as well. The filter to sampler travel time (T_f) for the radon gas was calculated to be 33.2 seconds.

After determining the concentration of Rn-220 and Rn-222 at the downstream side of the HEPA filters, the total release was estimated by averaging the concentrations and multiplying by the stack's discharge volume.

Definitions of Variables:

T_{g1}	gross counting time of Rn-220 interval, 3 min (1 interval)
T_{g2}	gross counting time of Rn-222 interval, 60 min (20 intervals)
T_{D2}	time between sampling and start of interval #2, 0 min
T_{D80}	time between sampling and start of interval #80, 234 min (78 intervals)
G_j	number of gross counts for interval j, counts
N_i	number of net counts from nuclide i, counts
R_b	background count rate, cpm
V	sample volume, 0.270 ± 0.003 L
ϵ_i	counting efficiency for nuclide i, cpm/dpm
λ_i	decay constant of nuclide i, sec^{-1}
A_i	effective number of alpha particle emitted per decay for nuclide i
CF_1	conversion factor to convert sec to min, 60 s/min
CF_2	conversion factor to convert dpm to pCi, 2.22 dpm/pCi
C_i	gas concentration of nuclide i in the radon monitor, pCi/L

Rn-222 Equations:

$$N_{222} = \left(\sum_{j=80}^{99} G_j \right) - R_b T_{g2}$$

$$C_{222} = \frac{N_{222} \lambda_{222} CF_1}{A_{222} CF_2 V \epsilon_{222} (e^{-\lambda_{222} CF_1 T_{D80}}) (1 - e^{-\lambda_{222} CF_1 T_{g2}})}$$

Rn-220 Equations:

$$N_{220} = G_2 - R_b T_{g1} - C_{222} V \epsilon_{222} T_{g1} CF_2$$

$$C_{220} = \frac{N_{220} \lambda_{220} CF_1}{A_{220} CF_2 V \epsilon_{220} (e^{-\lambda_{220} CF_1 T_{D2}}) (1 - e^{-\lambda_{220} CF_1 T_{g1}})}$$

Known Parameters for CY-1997 Measurements:

$$i = 222, \text{ for Rn-222}$$

$$\lambda_{222} = 2.098218 \text{ E-06 sec}^{-1}$$

$$A_{222} = 3$$

$$i = 220, \text{ for Rn-220}$$

$$\lambda_{220} = 1.246443 \text{ E-02 sec}^{-1}$$

$$A_{220} = 2$$

$$T_{g1} = 3 \text{ min}$$

$$T_{g2} = 60 \text{ min}$$

$$T_{D2} = 0 \text{ min}$$

$$T_{D80} = 234 \text{ min}$$

$$V = 0.270 \pm 0.003 \text{ L}$$

AB-5 and Lucas cell data for period of: 1/01/97 - 4/04/97

$$\epsilon_{222} = 0.752 \text{ cpm/dpm}$$

$$\epsilon_{220} = 0.485 \text{ cpm/dpm} = (0.6454)(0.752)$$

$$R_b = 1.2 \text{ cpm}$$

AB-5 and Lucas cell data for period of: 4/04/97 - 5/27/97

$$\epsilon_{222} = 0.718 \text{ cpm/dpm}$$

$$\epsilon_{220} = 0.463 \text{ cpm/dpm} = (0.6454)(0.718)$$

$$R_b = 0.2 \text{ cpm}$$

Run Starting: 01/02/97

Interval Number	Cycle 1 Gross Count (13:44)	Cycle 2 Gross Count (18:41)	Cycle 3 Gross Count (23:38)	Cycle 4 Gross Count (04:35)	Cycle 5 Gross Count (09:32)	Average Total Gross Count
2	42	11	55	36	39	36.6
80	5	6	5	5	5	
81	10	7	5	6	6	
82	4	6	4	6	2	
83	10	4	5	12	3	
84	5	10	7	5	2	
85	5	4	10	5	4	
86	9	4	4	4	5	
87	7	12	8	5	9	
88	8	9	5	4	4	
89	5	3	9	6	6	
90	4	5	9	12	2	
91	4	8	3	5	5	
92	6	9	11	5	3	
93	8	9	7	10	10	
94	5	2	7	4	10	
95	7	9	9	6	4	
96	2	13	9	3	8	
97	2	1	5	5	4	
98	7	6	5	4	9	
99	8	3	4	10	6	
SUM (80-99)	121	130	131	122	107	122.2

Run Starting: 01/09/97

Interval Number	Cycle 1 Gross Count (16:06)	Cycle 2 Gross Count (21:03)	Cycle 3 Gross Count (02:00)	Cycle 4 Gross Count (06:57)	Cycle 5 Gross Count (11:54)	Average Total Gross Count
2	49	44	36	28	37	38.8
80	8	9	5	4	10	
81	9	4	8	10	6	
82	6	6	8	5	9	
83	4	8	10	4	9	
84	6	7	3	9	9	
85	16	8	6	8	6	
86	12	5	13	3	4	
87	6	12	4	4	5	
88	8	14	10	8	5	
89	11	8	5	8	8	
90	14	7	9	9	9	
91	13	6	7	8	2	
92	13	9	14	5	9	
93	10	6	1	4	13	
94	8	7	6	10	6	
95	10	15	13	6	7	
96	11	6	1	2	4	
97	8	14	6	5	7	
98	10	8	8	5	6	
99	8	9	14	6	4	
SUM (80-99)	191	168	151	123	138	154.2

Run Starting: 01/30/97

Interval Number	Cycle 1 Gross Count (13:20)	Cycle 2 Gross Count (18:17)	Cycle 3 Gross Count (23:14)	Cycle 4 Gross Count (04:11)	Cycle 5 Gross Count (09:08)	Average Total Gross Count
2	31	28	30	41	35	33.0
80	8	7	10	3	6	
81	6	6	7	13	7	
82	11	6	11	8	8	
83	10	7	5	9	0	
84	4	3	5	6	4	
85	7	8	7	3	9	
86	6	5	9	7	5	
87	3	4	9	11	4	
88	5	10	9	3	3	
89	10	5	9	4	10	
90	10	6	9	5	8	
91	5	6	8	5	7	
92	2	8	18	8	8	
93	12	4	7	4	7	
94	2	7	13	7	6	
95	6	8	6	6	9	
96	6	3	4	4	7	
97	5	7	11	9	6	
98	6	3	7	8	6	
99	9	5	4	14	5	
SUM (80-99)	133	118	168	137	125	136.2

Run Starting: 02/06/97

Interval Number	Cycle 1 Gross Count (13:58)	Cycle 2 Gross Count (18:55)	Cycle 3 Gross Count (23:52)	Cycle 4 Gross Count (04:49)	Cycle 5 Gross Count (09:46)	Average Total Gross Count
2	33	44	29	33	30	33.8
80	3	8	11	7	7	
81	5	4	8	12	7	
82	10	7	6	10	7	
83	8	11	5	6	7	
84	6	7	7	6	6	
85	9	4	8	6	2	
86	14	3	5	4	11	
87	8	6	6	5	5	
88	9	7	7	3	9	
89	8	8	6	7	6	
90	10	8	7	6	7	
91	3	6	8	3	4	
92	4	5	6	8	6	
93	2	11	4	12	7	
94	7	5	5	9	5	
95	7	5	8	12	4	
96	7	13	4	17	7	
97	5	10	6	7	9	
98	12	8	6	1	12	
99	11	6	2	3	2	
SUM (80-99)	148	142	125	144	130	137.8

Run Starting: 02/13/97

Interval Number	Cycle 1 Gross Count (13:41)	Cycle 2 Gross Count (18:38)	Cycle 3 Gross Count (23:35)	Cycle 4 Gross Count (04:32)	Cycle 5 Gross Count (09:29)	Average Total Gross Count
2	35	36	26	51	45	38.6
80	5	6	3	5	4	
81	4	7	5	3	4	
82	8	8	5	7	6	
83	5	5	5	8	4	
84	8	5	11	5	4	
85	5	9	6	5	6	
86	8	6	6	9	6	
87	7	5	3	4	9	
88	6	4	2	8	8	
89	7	7	2	3	9	
90	6	7	9	3	11	
91	4	7	5	5	7	
92	10	3	7	3	3	
93	7	4	4	8	6	
94	5	6	9	8	5	
95	6	7	5	3	6	
96	4	9	2	3	4	
97	14	7	5	8	1	
98	9	6	4	4	2	
99	4	7	7	10	7	
SUM (80-99)	132	125	105	112	112	117.2

Run Starting: 02/20/97

Interval Number	Cycle 1 Gross Count (13:48)	Cycle 2 Gross Count (18:45)	Cycle 3 Gross Count (23:42)	Cycle 4 Gross Count (04:39)	Cycle 5 Gross Count (09:36)	Average Total Gross Count
2	25	29	28	44	24	30.0
80	7	10	3	5	6	
81	6	7	9	5	7	
82	5	8	7	4	7	
83	5	5	4	6	7	
84	8	4	4	13	7	
85	10	7	7	3	9	
86	8	7	9	4	7	
87	11	6	10	7	7	
88	9	7	7	7	3	
89	10	5	6	9	4	
90	8	6	6	5	7	
91	2	10	7	10	6	
92	8	3	5	7	4	
93	7	12	7	3	6	
94	7	6	3	7	9	
95	8	2	3	8	8	
96	7	6	9	4	17	
97	5	2	5	6	13	
98	7	6	11	6	9	
99	8	9	2	9	5	
SUM (80-99)	146	128	124	128	148	134.8

Run Starting: 02/28/97

Interval Number	Cycle 1 Gross Count (08:25)	Cycle 2 Gross Count (13:22)	Cycle 3 Gross Count (18:19)	Cycle 4 Gross Count (23:16)	Cycle 5 Gross Count (04:13)	Average Total Gross Count
2	39	27	23	31	34	30.8
80	9	3	7	7	11	
81	6	5	8	5	3	
82	4	3	3	5	7	
83	2	1	6	6	2	
84	10	12	3	4	9	
85	13	5	3	7	8	
86	8	7	9	9	4	
87	5	10	4	5	6	
88	2	6	5	3	2	
89	9	8	6	5	6	
90	4	7	11	4	10	
91	2	8	7	7	3	
92	9	6	8	8	5	
93	9	6	5	5	6	
94	5	4	6	4	6	
95	8	5	4	6	8	
96	4	6	6	2	8	
97	8	6	6	4	2	
98	6	6	4	6	5	
99	2	4	4	5	6	
SUM (80-99)	125	118	115	107	117	116.4

Run Starting: 03/06/97

Interval Number	Cycle 1 Gross Count (12:58)	Cycle 2 Gross Count (17:55)	Cycle 3 Gross Count (22:52)	Cycle 4 Gross Count (03:49)	Cycle 5 Gross Count (08:46)	Average Total Gross Count
2	27	37	30	39	25	31.6
80	5	5	5	3	6	
81	3	6	7	7	6	
82	5	4	4	5	7	
83	6	8	9	7	8	
84	8	7	6	11	3	
85	6	10	7	6	6	
86	4	7	2	8	9	
87	8	9	2	2	3	
88	12	3	10	9	5	
89	5	3	7	3	1	
90	10	8	5	3	3	
91	5	5	8	6	2	
92	4	10	9	9	9	
93	8	4	8	6	8	
94	9	6	1	3	6	
95	10	4	10	4	5	
96	7	7	9	7	4	
97	8	8	8	3	15	
98	10	5	6	1	2	
99	11	14	6	6	2	
SUM (80-99)	144	133	129	109	110	125.0

Run Starting: 03/14/97

Interval Number	Cycle 1 Gross Count (14:13)	Cycle 2 Gross Count (19:10)	Cycle 3 Gross Count (00:07)	Cycle 4 Gross Count (05:04)	Cycle 5 Gross Count (10:01)	Average Total Gross Count
2	39	45	38	34	28	36.8
80	3	8	10	1	6	
81	5	9	4	17	7	
82	6	9	5	8	10	
83	9	10	4	13	2	
84	6	5	10	11	10	
85	8	9	8	4	6	
86	5	8	9	5	5	
87	6	10	4	8	8	
88	6	16	5	7	6	
89	8	6	10	12	9	
90	7	4	12	12	3	
91	5	5	7	7	7	
92	7	4	13	6	4	
93	8	6	8	12	10	
94	9	4	5	9	6	
95	7	9	13	5	6	
96	11	7	4	11	8	
97	3	8	1	7	11	
98	9	8	7	5	7	
99	6	6	8	11	8	
SUM (80-99)	134	151	147	171	139	148.4

Run Starting: 03/20/97

Interval Number	Cycle 1 Gross Count (10:34)	Cycle 2 Gross Count (15:31)	Cycle 3 Gross Count (20:28)	Cycle 4 Gross Count (01:25)	Cycle 5 Gross Count (06:22)	Average Total Gross Count
2	25	41	36	23	30	31.0
80	7	8	5	4	6	
81	5	6	3	5	4	
82	7	6	4	10	7	
83	4	4	7	0	6	
84	6	4	5	3	5	
85	5	7	5	2	2	
86	7	9	5	11	6	
87	3	11	8	5	4	
88	7	7	4	5	6	
89	4	12	7	4	8	
90	2	6	6	3	5	
91	2	8	4	3	8	
92	4	9	0	5	6	
93	14	6	5	4	3	
94	7	4	2	2	8	
95	8	12	8	4	5	
96	6	3	11	10	7	
97	8	12	3	9	8	
98	7	2	6	8	7	
99	3	7	8	8	13	
SUM (80-99)	116	143	106	105	124	118.8

Run Starting: 03/27/97

Interval Number	Cycle 1 Gross Count (14:58)	Cycle 2 Gross Count (19:55)	Cycle 3 Gross Count (00:52)	Cycle 4 Gross Count (05:49)	Cycle 5 Gross Count (10:46)	Average Total Gross Count
2	30	30	30	35	29	30.8
80	7	3	7	7	2	
81	8	4	6	6	5	
82	8	3	7	11	3	
83	7	9	4	3	6	
84	10	8	2	8	7	
85	5	2	2	5	6	
86	5	4	6	9	5	
87	2	3	10	7	3	
88	7	6	6	6	1	
89	5	8	7	5	4	
90	4	8	5	3	7	
91	4	11	5	4	7	
92	6	2	7	4	11	
93	9	8	4	5	4	
94	6	5	5	5	4	
95	2	5	9	4	7	
96	10	3	6	6	4	
97	4	7	4	5	2	
98	11	11	5	6	7	
99	8	5	6	4	5	
SUM (80-99)	128	115	113	113	100	113.8

Run Starting: 04/04/97

Interval Number	Cycle 1 Gross Count (13:47)	Cycle 2 Gross Count (18:44)	Cycle 3 Gross Count (23:41)	Cycle 4 Gross Count (04:38)	Cycle 5 Gross Count (09:35)	Average Total Gross Count
2	23	33	47	25	46	34.8
80	13	12	15	12	8	
81	6	8	15	7	8	
82	6	22	9	10	12	
83	19	14	7	16	10	
84	6	10	10	9	5	
85	11	10	6	9	8	
86	10	6	15	7	7	
87	9	14	15	7	7	
88	9	7	16	13	11	
89	9	6	11	15	14	
90	4	14	8	10	10	
91	5	10	12	20	9	
92	12	7	14	10	5	
93	11	10	7	17	9	
94	9	10	10	5	9	
95	6	13	7	15	8	
96	10	10	13	12	12	
97	10	13	12	7	13	
98	9	16	10	5	8	
99	13	16	10	9	4	
SUM (80-99)	187	228	222	215	177	205.8

Run Starting: 04/11/97

Interval Number	Cycle 1 Gross Count (14:49)	Cycle 2 Gross Count (19:46)	Cycle 3 Gross Count (00:43)	Cycle 4 Gross Count (05:40)	Cycle 5 Gross Count (10:37)	Average Total Gross Count
2	42	30	46	48	32	39.6
80	9	11	12	8	9	
81	10	5	12	13	16	
82	10	10	11	9	8	
83	11	10	17	13	10	
84	15	8	7	7	12	
85	9	9	19	12	11	
86	6	4	10	15	12	
87	18	12	13	14	10	
88	11	9	7	7	19	
89	7	13	14	16	5	
90	9	12	13	11	8	
91	8	9	21	7	11	
92	8	7	11	18	14	
93	12	16	16	13	7	
94	15	4	15	11	5	
95	14	13	15	8	7	
96	15	10	14	14	9	
97	15	3	14	9	14	
98	12	9	10	9	10	
99	10	7	10	14	14	
SUM (80-99)	224	181	261	228	211	221.0

Run Starting: 04/17/97

Interval Number	Cycle 1 Gross Count (09:28)	Cycle 2 Gross Count (14:22)	Cycle 3 Gross Count (19:19)	Cycle 4 Gross Count (00:16)	Cycle 5 Gross Count (05:13)	Average Total Gross Count
2	35	41	26	26	38	33.2
80	10	6	9	10	10	
81	7	9	5	14	12	
82	17	10	12	11	13	
83	10	9	14	16	13	
84	9	7	10	10	20	
85	12	7	10	8	12	
86	10	7	8	11	18	
87	15	9	11	7	8	
88	11	12	11	9	15	
89	14	16	12	19	9	
90	9	10	13	9	8	
91	6	12	8	8	4	
92	8	8	11	12	9	
93	8	9	14	12	11	
94	20	8	12	10	11	
95	12	8	8	4	12	
96	13	4	12	11	8	
97	21	7	13	13	20	
98	13	9	10	7	7	
99	12	13	9	15	13	
SUM (80-99)	237	180	212	216	233	215.6

Run Starting: 04/24/97

Interval Number	Cycle 1 Gross Count (08:45)	Cycle 2 Gross Count (13:42)	Cycle 3 Gross Count (18:39)	Cycle 4 Gross Count (23:36)	Cycle 5 Gross Count (04:33)	Average Total Gross Count
2	34	44	31	57	36	40.4
80	8	11	11	9	6	
81	5	7	15	8	12	
82	15	10	12	10	9	
83	8	11	5	10	14	
84	11	6	8	9	13	
85	13	12	12	20	14	
86	12	12	7	9	10	
87	9	10	12	16	10	
88	10	14	14	16	11	
89	11	7	5	16	11	
90	7	14	9	9	11	
91	6	9	5	10	11	
92	4	13	5	8	11	
93	15	8	7	14	11	
94	6	16	12	13	10	
95	13	9	13	13	8	
96	11	15	9	17	10	
97	10	8	13	9	6	
98	8	8	8	11	5	
99	7	13	9	9	13	
SUM (80-99)	189	213	191	236	206	207.0

Run Starting: 05/01/97

Interval Number	Cycle 1 Gross Count (10:14)	Cycle 2 Gross Count (15:11)	Cycle 3 Gross Count (20:08)	Cycle 4 Gross Count (01:05)	Cycle 5 Gross Count (06:02)	Average Total Gross Count
2	29	31	35	37	37	33.8
80	9	8	12	11	15	
81	5	4	14	13	14	
82	14	11	13	15	11	
83	13	5	8	15	6	
84	9	9	10	9	10	
85	10	10	5	7	9	
86	6	15	13	8	13	
87	10	8	9	10	14	
88	13	9	10	12	5	
89	15	12	8	13	6	
90	6	8	9	9	9	
91	14	13	6	12	15	
92	5	8	8	12	13	
93	13	13	12	12	19	
94	9	9	5	9	12	
95	4	12	13	8	13	
96	11	6	11	12	8	
97	11	9	8	7	9	
98	7	9	5	10	6	
99	6	11	11	9	11	
SUM (80-99)	190	189	190	213	218	200.0

Run Starting: 05/08/97

Interval Number	Cycle 1 Gross Count (09:59)	Cycle 2 Gross Count (14:56)	Cycle 3 Gross Count (19:53)	Cycle 4 Gross Count (00:50)	Cycle 5 Gross Count (05:47)	Average Total Gross Count
2	29	47	36	28	31	34.2
80	16	10	15	10	11	
81	10	9	10	19	8	
82	6	10	15	12	11	
83	9	11	11	15	6	
84	6	10	13	11	11	
85	8	9	14	14	13	
86	16	12	8	9	10	
87	8	8	11	10	18	
88	6	6	9	7	12	
89	8	10	11	11	10	
90	6	8	9	6	9	
91	4	10	11	11	6	
92	11	11	15	11	14	
93	10	3	16	10	11	
94	5	16	15	15	14	
95	11	9	15	17	9	
96	9	9	16	7	11	
97	7	17	11	11	9	
98	14	13	8	13	12	
99	6	7	8	12	12	
SUM (80-99)	176	198	241	231	217	212.6

EP-327-01-S Stack: CY-1997 Rn-222 & Rn-220 Concentrations

Fixed Values:	
V =	0.270 L
Tg1 =	3 min
Tg2 =	60 min
TD2 =	0 min
TD80 =	234 min
Tfs =	33.2 sec

Sample Start		Sample End		Rb (cpm)	G2 (counts)	G80 (counts)	Decay Constant (sec ⁻¹)		Sampling		Counting		Monitor Concentration (pCi/L)	Concentration Released (pCi/L)	Concentration Released (uCi/mL)	Ratio 220/222	
Date	Time	Date	Time				Nuclide	AI	Ni (counts)	Ei (cpm/dpm)	Decay Corr.	Decay Corr.					
01/02/97	13:44	01/03/97	14:29	1.2	36.6	122.2	Rn-222	3	2.0979E-06	50.2	0.752	0.97097	0.00752	0.64	0.64	6.4E-10	109
							Rn-220	2	1.2464E-02	32.1	0.485	1.00000	0.89392	46.24	69.94	7.0E-08	
01/09/97	16:06	01/10/97	16:51	1.2	38.8	154.2	Rn-222	3	2.0979E-06	82.2	0.752	0.97097	0.00752	1.05	1.05	1.0E-09	70
							Rn-220	2	1.2464E-02	33.8	0.485	1.00000	0.89392	48.61	73.53	7.4E-08	
01/30/97	13:20	01/31/97	14:05	1.2	33.0	136.2	Rn-222	3	2.0979E-06	64.2	0.752	0.97097	0.00752	0.82	0.82	8.2E-10	75
							Rn-220	2	1.2464E-02	28.3	0.485	1.00000	0.89392	40.71	61.58	6.2E-08	
02/06/97	13:58	02/07/97	14:43	1.2	33.8	137.8	Rn-222	3	2.0979E-06	65.8	0.752	0.97097	0.00752	0.84	0.84	8.4E-10	75
							Rn-220	2	1.2464E-02	29.1	0.485	1.00000	0.89392	41.82	63.26	6.3E-08	
02/13/97	13:41	02/14/97	14:26	1.2	38.6	117.2	Rn-222	3	2.0979E-06	45.2	0.752	0.97097	0.00752	0.58	0.58	5.8E-10	129
							Rn-220	2	1.2464E-02	34.2	0.485	1.00000	0.89392	49.24	74.48	7.4E-08	
02/20/97	13:48	02/21/97	14:33	1.2	30.0	134.8	Rn-222	3	2.0979E-06	62.8	0.752	0.97097	0.00752	0.80	0.80	8.0E-10	69
							Rn-220	2	1.2464E-02	25.3	0.485	1.00000	0.89392	36.43	55.10	5.5E-08	
02/28/97	08:25	03/01/97	09:10	1.2	30.8	116.4	Rn-222	3	2.0979E-06	44.4	0.752	0.97097	0.00752	0.57	0.57	5.7E-10	102
							Rn-220	2	1.2464E-02	26.4	0.485	1.00000	0.89392	38.04	57.54	5.8E-08	
03/06/97	12:58	03/07/97	13:43	1.2	31.6	125.0	Rn-222	3	2.0979E-06	53.0	0.752	0.97097	0.00752	0.68	0.68	6.8E-10	87
							Rn-220	2	1.2464E-02	27.1	0.485	1.00000	0.89392	38.98	58.95	5.9E-08	
03/14/97	14:13	03/15/97	14:58	1.2	36.8	148.4	Rn-222	3	2.0979E-06	76.4	0.752	0.97097	0.00752	0.97	0.97	9.7E-10	71
							Rn-220	2	1.2464E-02	31.9	0.485	1.00000	0.89392	45.88	69.39	6.9E-08	

EP-327-01-S Stack: CY-1997 Rn-222 & Rn-220 Concentrations

Fixed-Values	
V =	0.270 L
Tg1 =	3 min
Tg2 =	60 min
TD2 =	0 min
TD80 =	234 min
Tfs =	33.2 sec

Sample Start Date		Sample End Date		Rb (cpm)	G2 (counts)	G80 (counts)	Naclide		Decay Constant (sec ⁻¹)	Ni (counts)	El (cpm/dpm)	Sampling Decay Corr.	Counting Decay Corr.	Monitor Concentration (pCi/L)	Concentration Released (pCi/L)	Concentration Released (uCi/mL)	Ratio 220/222
03/20/97	10:34	03/21/97	11:19	1.2	31.0	118.8	Rn-222	3	2.0979E-06	46.8	0.752	0.97097	0.00752	0.60	0.60	6.0E-10	97
							Rn-220	2	1.2464E-02	26.6	0.485	1.00000	0.89392	38.27	57.88	5.8E-08	
03/27/97	14:58	03/28/97	15:43	1.2	30.8	113.8	Rn-222	3	2.0979E-06	41.8	0.752	0.97097	0.00752	0.53	0.53	5.3E-10	108
							Rn-220	2	1.2464E-02	26.5	0.485	1.00000	0.89392	38.10	57.63	5.8E-08	
04/04/97	13:47	04/05/97	14:32	0.2	34.8	205.8	Rn-222	3	2.0979E-06	193.8	0.718	0.97097	0.00752	2.59	2.59	2.5E-09	27
							Rn-220	2	1.2464E-02	30.9	0.463	1.00000	0.89392	46.52	70.36	7.0E-08	
04/11/97	14:49	04/12/97	15:34	0.2	39.6	221	Rn-222	3	2.0979E-06	209.0	0.718	0.97097	0.00752	2.79	2.79	2.8E-09	29
							Rn-220	2	1.2464E-02	35.4	0.463	1.00000	0.89392	53.36	80.71	8.1E-08	
04/17/97	09:25	04/18/97	10:10	0.2	33.2	215.8	Rn-222	3	2.0979E-06	203.6	0.718	0.97097	0.00752	2.72	2.72	2.7E-09	24
							Rn-220	2	1.2464E-02	29.1	0.463	1.00000	0.89392	43.85	66.33	6.6E-08	
04/24/97	08:45	04/25/97	09:30	0.2	40.4	207	Rn-222	3	2.0979E-06	195.0	0.718	0.97097	0.00752	2.60	2.60	2.6E-09	32
							Rn-220	2	1.2464E-02	36.4	0.463	1.00000	0.89392	54.93	83.98	8.3E-08	
05/01/97	10:14	05/02/97	10:59	0.2	33.8	200	Rn-222	3	2.0979E-06	188.0	0.718	0.97097	0.00752	2.51	2.51	2.5E-09	27
							Rn-220	2	1.2464E-02	30.0	0.463	1.00000	0.89392	45.16	68.31	6.8E-08	
05/08/97	09:59	05/09/97	10:44	0.2	34.2	212.6	Rn-222	3	2.0979E-06	200.6	0.718	0.97097	0.00752	2.68	2.68	2.7E-09	26
							Rn-220	2	1.2464E-02	30.1	0.463	1.00000	0.89392	45.44	68.72	6.9E-08	

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6.2 Calculations Verifying ERS Generated Release Calculations

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6.2.1 116-N Release Calculations

100-N REACTOR RELEASE CALCULATIONS

116-N: 100-N Main Stack (Y211)

Particulate Correction Factor: 0.73
 AgZ Correction Factor: N/A

Total Alpha & Beta Releases

Sample Number	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Alpha Conc. (uCi/mL)	Beta Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Alpha Release (Ci)	Beta Release (Ci)
BOLJN9	01/01/97	00:00	01/02/97	07:25	31.4		4.1E-17	5.7E-15	80000.0	1.131E+08		2.5E-08
BOLJN9	01/02/97	07:25	01/15/97	08:30	313.1	313.1	4.1E-17	5.7E-15	80000.0	1.127E+08		2.5E-07
BOLJN0	01/15/97	08:30	01/29/97	13:45	341.3	340.6	1.2E-15	1.5E-14	47899.0	9.807E+08	4.6E-08	5.7E-07
BOLJN1	01/29/97	13:55	02/12/97	11:10	333.3	333.3	7.5E-16	7.7E-15	60000.0	1.200E+09	3.5E-08	3.6E-07
BOLJN2	02/12/97	13:30	02/26/97	14:00	336.5	336.1	9.6E-17	9.6E-16	60000.0	1.211E+09		4.5E-08
BOLJN3	02/26/97	09:30	03/12/97	10:05	336.6	332.0	-1.0E-16	5.5E-16	60000.0	1.212E+09		2.6E-08
BOLJN28	03/12/97	15:00	03/26/97	15:20	336.3	340.6	1.7E-16	1.9E-15	61178.0	1.235E+09		9.1E-08
BOLJN29	03/26/97	08:00	04/09/97	08:20	338.3	329.1	2.0E-17	3.3E-15	75000.0	1.514E+09		1.9E-07
S222719	04/09/97	08:27	04/16/97	13:25	173.0	173.0	2.0E-16	1.5E-15	75000.0	7.784E+08		4.5E-08
S222720	04/16/97	13:25	04/30/97	12:55	335.5	335.5	4.0E-16	2.3E-16	75000.0	1.510E+09		
S226119	04/30/97	12:55	05/14/97	12:50	335.9	335.9	2.8E-16	1.0E-15	75000.0	1.512E+09		5.9E-08
S226118	05/14/97	12:50	05/28/97	12:10	335.3	335.3	1.0E-16	3.4E-15	75000.0	1.509E+09		2.0E-07
S222718	05/28/97	12:12	06/11/97	10:48	334.6	334.6	1.0E-16	1.3E-15	97242.0	1.952E+09		9.8E-08
S232299	06/11/97	10:49	06/25/97	08:12	333.4	333.4	5.1E-16	4.0E-16	120000.0	2.400E+09		
S232300	06/25/97	08:12	07/09/97	13:42	341.5	341.5	-3.8E-17	5.2E-16	119841.0	2.459E+09		
S232301	07/09/97	13:43	07/23/97	14:51	337.1	337.1	1.4E-16	6.6E-16	120000.0	2.427E+09		
S232302	07/23/97	14:53	08/06/97	12:06	333.2	333.2	-3.9E-17	8.1E-16	120000.0	2.399E+09		7.5E-08
S232317	08/06/97	12:06	08/20/97	12:36	336.5	336.5	1.4E-16	2.2E-15	120000.0	2.423E+09		2.1E-07
S232318	08/20/97	12:41	09/03/97	13:29	336.8	336.8	-4.4E-17	9.4E-16	120000.0	2.423E+09		8.8E-08
S232319	09/03/97	13:32	09/17/97	10:02	332.5	332.5	-4.4E-17	1.1E-15	120000.0	2.394E+09		1.0E-07
S232320	09/17/97	10:06	10/01/97	13:19	339.2	339.2	-4.3E-17	1.8E-15	120000.0	2.442E+09		1.8E-07
S240305	10/01/97	13:25	10/15/97	09:01	331.6	331.6	2.9E-16	3.0E-15	120000.0	2.389E+09		2.8E-07
S240307	10/15/97	09:01	10/30/97	07:16	358.3	358.3	2.7E-16	2.4E-14	120000.0	2.379E+09		2.4E-06
S240308	10/30/97	07:16	11/12/97	10:44	315.5	315.5	3.0E-16	2.4E-15	68781.0	1.302E+09		1.2E-07
S240310	11/12/97	10:44	11/26/97	08:38	309.9	309.9	1.1E-16	1.6E-15	60000.0	1.118E+09		6.9E-08
S240309	11/26/97	08:38	12/10/97	13:14	364.6	364.6	9.2E-16	3.5E-15	60000.0	1.313E+09	4.7E-08	1.8E-07
S240308	12/10/97	13:15	12/22/97	10:00	284.8	284.8	1.3E-16	2.0E-15	60000.0	1.025E+09		8.0E-08
SXXXXX	12/22/97	10:00	12/23/97	17:00	31.0		1.3E-16	2.0E-15	60000.0	1.118E+09		8.7E-09
SXXXXX	12/23/97	17:00	12/29/97	08:41	135.7		1.3E-16	2.0E-15	15000.0	1.221E+08		9.5E-09
SXXXXX	12/29/97	08:41	12/31/97	23:59	63.3		1.3E-16	2.0E-15	60000.0	2.279E+08		1.8E-08
Sum:					8763.9	8494.0			Total Releases:	4.540E+10	1.274E-07	5.777E-06
									ERS Releases:	4.5E+10	-1.3E-07	5.8E-06
									Percent Difference:	0.9%	-2.0%	-0.4%

100-N REACTOR RELEASE CALCULATIONS

116-N: 100-N Main Stack (Y211)

Particulate Correction Factor: 0.73
 AgZ Correction Factor: N/A

Pu-239/240 Releases

EDP Code	Date ON	Time ON	Date OFF	Time OFF	Calc.	ERS Time (hr)	Pu-239/240	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Pu-239/240		
					Time (hr)		Conc. (uCi/mL)			Release (Ci)		
	01/01/97	00:00	01/02/97	07:25	31.4		3.1E-17	60000.0	1.131E+08			
X211	01/02/97	07:25	01/15/97	08:30	313.1	313.1	3.1E-17	60000.0	1.127E+08			
X211	01/15/97	08:30	01/29/97	13:45	341.3	340.6	1.1E-17	47896.0	9.807E+08			
X211	01/29/97	13:55	02/12/97	11:10	333.3	333.3	-3.0E-18	60000.0	1.200E+09			
X211	02/12/97	13:30	02/26/97	14:00	336.5	336.1	-1.5E-18	60000.0	1.211E+09			
X211	02/26/97	09:30	03/12/97	10:05	336.6	332.0	-1.7E-18	60000.0	1.212E+09			
X211	03/12/97	15:00	03/26/97	15:20	336.3	340.6	1.4E-17	61178.0	1.235E+09			
X211	03/26/97	08:00	04/09/97	08:20	336.3	329.1	-5.3E-18	75000.0	1.514E+09			
X211	04/09/97	08:27	06/11/97	10:48	1514.3	1514.3	1.5E-17	79914.5	7.261E+09			
X211	06/11/97	10:49	07/09/97	13:42	674.9	674.9	7.3E-17	119919.5	4.856E+09	1.4E-08		
X211	07/09/97	13:43	08/06/97	12:06	670.4	670.4	3.5E-17	120000.0	4.827E+09			
X211	08/06/97	12:06	09/03/97	13:29	673.3	673.3	6.4E-17	120000.0	4.848E+09	1.2E-08		
X211	09/03/97	13:32	10/01/97	13:19	671.7	671.7	2.8E-17	120000.0	4.836E+09			
X211	10/01/97	13:25	10/30/97	07:16	689.9	689.8	2.8E-17	120000.0	4.967E+09			
X211	10/30/97	07:16	11/25/97	08:38	625.4	625.4	8.6E-18	64429.6	2.418E+09			
X211	11/25/97	08:38	12/22/97	10:00	649.4	649.4	1.4E-17	60000.0	2.338E+09			
X211	12/22/97	10:00	12/23/97	17:00	31.0		1.4E-17	60000.0	1.116E+08			
X211	12/23/97	17:00	12/29/97	08:41	135.7		1.4E-17	15000.0	2.21E+08			
X211	12/29/97	08:41	12/31/97	23:59	63.3		1.4E-17	60000.0	2.279E+08			
Sum:					8763.9	8494.0	Total Releases:			4.540E+10	2.58E-08	
					ERS Release:						2.6E-08	
					Percent Difference:						-0.8%	

Sr-90 Releases

EDP Code	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Sr-90 Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Sr-90 Release (Ci)	
	01/01/97	00:00	01/02/97	07:25	31.4		2.4E-16	60000.0	1.131E+08		
X211	01/02/97	07:25	01/15/97	08:30	313.1	313.1	2.4E-16	60000.0	1.127E+09		
X211	01/15/97	08:30	01/29/97	13:45	341.3	340.6	-1.7E-16	47896.0	9.807E+08		
X211	01/29/97	13:55	02/12/97	11:10	333.3	333.3	-7.5E-17	60000.0	1.200E+09		
X211	02/12/97	13:30	02/26/97	14:00	336.5	336.1	-1.1E-16	60000.0	1.211E+09		
X211	02/26/97	09:30	03/12/97	10:05	336.6	332.0	1.3E-15	60000.0	1.212E+09	6.1E-08	
X211	03/12/97	15:00	03/26/97	15:20	336.3	340.6	2.2E-15	61178.0	1.235E+09	1.8E-08	
X211	03/26/97	08:00	04/09/97	08:20	336.3	329.1	1.5E-15	75000.0	1.514E+09	8.8E-08	
X211	04/09/97	08:27	06/11/97	10:48	1514.3	1514.3	-5.5E-16	79914.5	7.261E+09		
X211	06/11/97	10:49	07/09/97	13:42	674.9	674.9	1.4E-15	119919.5	4.856E+09		
X211	07/09/97	13:43	08/06/97	12:06	670.4	670.4	2.6E-15	120000.0	4.827E+09		
X211	08/06/97	12:06	09/03/97	13:29	673.3	673.3	3.9E-15	120000.0	4.848E+09	7.3E-07	
X211	09/03/97	13:32	10/01/97	13:19	671.7	671.7	5.8E-15	120000.0	4.836E+09	1.1E-06	
X211	10/01/97	13:25	10/30/97	07:16	689.9	689.8	3.8E-15	120000.0	4.967E+09	7.3E-07	
X211	10/30/97	07:16	11/25/97	08:38	625.4	625.4	1.2E-15	64429.6	2.418E+09		
X211	11/25/97	08:38	12/22/97	10:00	649.4	649.4	1.7E-15	60000.0	2.338E+09		
X211	12/22/97	10:00	12/23/97	17:00	31.0		1.1E-14	60000.0	1.116E+08		
X211	12/23/97	17:00	12/29/97	08:41	135.7		1.1E-14	15000.0	1.221E+08		
X211	12/29/97	08:41	12/31/97	23:59	63.3		1.1E-14	60000.0	2.279E+08		
Sum:					8763.9	8494.0	Total Releases:			4.540E+10	2.81E-06
					ERS Releases:					2.8E-06	
					Percent Difference:					0.3%	

WEIGHTED STACK FLOW RATES

116-N Stack (Y211)

Sample Number	Sampling Periods				Stack Operating Data				Flow Rate (cfm)	Weighted Stack Flow Rate (cfm)	Sample Number
	ON Date	OFF Time	ON Date	OFF Time	ON Date	OFF Time	ON Date	OFF Time			
B0JLM9	01/01/97	00:00	01/02/97	07:25	01/01/97	00:00	01/02/97	07:25	60000	60000	B0JLM9
B0JLN0	01/02/97	07:25	01/15/97	08:30	01/02/97	07:25	01/15/97	08:30	60000	60000	
	01/15/97	08:30	01/29/97	13:45	01/15/97	08:30	01/16/97	13:00	60000		
					01/16/97	13:00	01/20/97	08:50	15000		
					01/20/97	08:50	01/29/97	13:55	60000	47896	B0JLN0
B0JLN1	01/29/97	13:55	02/12/97	11:10	01/29/97	13:55	02/12/97	11:10	60000	60000	B0JLN1
B0JLN2	02/12/97	13:30	02/26/97	14:00	02/12/97	13:30	02/26/97	14:00	60000	60000	B0JLN2
B0JLN3	02/26/97	09:30	03/12/97	10:05	02/26/97	09:30	03/12/97	10:05	60000	60000	B0JLN3
B0JM28	03/12/97	15:00	03/26/97	15:20	03/12/97	15:00	03/26/97	12:55	60000		
					03/25/97	12:55	03/26/97	15:20	75000	61178	B0JM28
B0JM29	03/26/97	08:00	04/09/97	08:20	03/26/97	08:00	04/09/97	08:20	75000	75000	B0JM29
S222719	04/09/97	08:27	04/16/97	13:25	04/09/97	08:27	04/16/97	13:25	75000	75000	S222719
S222720	04/16/97	13:25	04/30/97	12:55	04/16/97	13:25	04/30/97	12:55	75000	75000	S222720
S226119	04/30/97	12:55	05/14/97	12:50	04/30/97	12:55	05/14/97	12:50	75000	75000	S226119
S226118	05/14/97	12:50	05/28/97	12:10	05/14/97	12:50	05/28/97	12:10	75000	75000	S226118
S222718	05/28/97	12:12	06/11/97	10:48	05/28/97	12:12	06/04/97	13:25	75000		
					06/04/97	13:25	06/11/97	10:48	120000	97242	S222718
S232299	06/11/97	10:49	06/25/97	08:12	06/11/97	10:49	06/25/97	08:12	120000	120000	S232299
S232300	06/25/97	08:12	07/09/97	13:42	06/25/97	08:12	07/02/97	07:10	120000		
					07/02/97	07:10	07/02/97	08:00	0		
					07/02/97	08:00	07/02/97	08:27	60000		
					07/02/97	08:27	07/09/97	13:42	120000	119841	S232300
S232301	07/09/97	13:43	07/23/97	14:51	07/09/97	13:43	07/23/97	14:51	120000	120000	S232301
S232302	07/23/97	14:53	08/06/97	12:06	07/23/97	14:53	08/06/97	12:06	120000	120000	S232302
S232317	08/06/97	12:06	08/20/97	12:36	08/06/97	12:06	08/20/97	12:36	120000	120000	S232317
S232318	08/20/97	12:41	09/03/97	13:29	08/20/97	12:41	09/03/97	13:29	120000	120000	S232318
S232319	09/03/97	13:32	09/17/97	10:02	09/03/97	13:32	09/17/97	10:02	120000	120000	S232319
S232320	09/17/97	10:06	10/01/97	13:19	09/17/97	10:06	10/01/97	13:19	120000	120000	S232320
S240305	10/01/97	13:25	10/15/97	09:01	10/01/97	13:25	10/15/97	09:01	120000	120000	S240305
S240307	10/15/97	09:01	10/30/97	07:16	10/15/97	09:01	10/30/97	07:16	120000	120000	S240307
S240306	10/30/97	07:16	11/12/97	10:44	11/01/97	10:06	11/01/97	10:06	120000		
					11/01/97	16:19	11/12/97	10:44	60000	68781	S240306
S240310	11/12/97	10:44	11/25/97	08:38	11/12/97	10:44	11/25/97	08:38	60000	60000	S240310
S240309	11/25/97	08:38	12/10/97	13:14	11/25/97	08:38	12/10/97	13:14	60000	60000	S240309
S240308	12/10/97	13:15	12/22/97	10:00	12/10/97	13:15	12/13/97	20:50	60000		
					12/13/97	20:50	12/13/97	23:40	0		
					12/13/97	23:40	12/22/97	10:00	60000	60000	S240308
SXXXXX	12/22/97	10:00	12/23/97	17:00	12/22/97	10:00	12/23/97	17:00	60000	60000	SXXXXX
SXXXXX	12/23/97	17:00	12/29/97	08:41	12/23/97	17:00	12/29/97	08:41	15000	15000	SXXXXX
SXXXXX	12/29/97	08:41	12/31/97	23:59	12/29/97	08:41	12/31/97	23:59	60000	60000	SXXXXX

Total Discharge Volume (cuft): 4.539E+10

6.2.2 296-A-17 & 296-P-26 Release Calculations

EAST TANK FARMS RELEASE CALCULATIONS

296-A-17: 241-AY/AZ Tank Farm Stack (E059)

Particulate Correction Factor: 0.71
 AgZ Correction Factor: 0.87

Total Alpha & Beta Releases

Sample Number	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Alpha Conc. (uCi/mL)	Beta Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Alpha Release (Ci)	Beta Release (Ci)
S209198	01/01/97	00:00	01/07/97	10:05	154.1		1.1E-15	2.0E-13	2763.4	2.555E+07	1.1E-09	2.0E-07
S210553	01/07/97	10:07	01/21/97	10:04	336.0	336.0	5.1E-16	2.0E-13	2981.1	6.009E+07		4.8E-07
S211842	01/21/97	10:04	02/04/97	14:41	340.6	340.6	4.2E-16	1.8E-13	3112.8	6.362E+07		4.6E-07
S213243	02/04/97	14:43	02/18/97	14:03	335.3	335.3	6.4E-17	2.3E-14	3099.2	6.236E+07		5.7E-08
S214829	02/18/97	14:04	03/04/97	13:38	335.6	335.6	4.3E-16	5.8E-14	3043.8	6.128E+07		1.4E-07
S216180	03/04/97	13:40	03/18/97	14:10	336.5	336.5	4.1E-15	2.0E-13	3082.2	6.223E+07	1.0E-08	5.0E-07
S217551	03/18/97	14:11	04/01/97	13:57	335.8	335.8	5.8E-16	9.0E-14	3152.0	6.350E+07	1.4E-09	2.3E-07
S218922	04/01/97	13:57	04/15/97	13:50	335.9	335.9	1.5E-15	1.2E-13	3152.0	6.352E+07	3.8E-09	3.0E-07
S220077	04/15/97	13:51	04/29/97	09:59	332.1	332.1	5.2E-16	1.8E-13	2875.1	5.729E+07		4.1E-07
S221426	04/29/97	10:00	05/13/97	10:16	336.3	336.3	4.0E-16	6.9E-14	3036.1	6.126E+07		1.7E-07
S222309	05/13/97	10:24	05/27/97	14:31	340.1	340.1	1.2E-15	4.7E-13	2938.4	5.992E+07	2.9E-09	1.1E-06
S224407	05/27/97	14:33	06/10/97	13:34	335.0	335.0	3.3E-16	4.5E-14	3152.0	6.336E+07		1.1E-07
S226022	06/10/97	13:35	06/24/97	14:54	337.3	337.3	-4.6E-17	1.7E-13	3152.0	6.379E+07		4.3E-07
S227318	06/24/97	14:56	07/08/97	09:48	330.9	330.9	8.1E-17	1.4E-13	3152.0	6.257E+07		3.5E-07
S228753	07/08/97	09:49	07/22/97	11:11	337.4	337.4	1.2E-15	2.7E-12	2599.9	5.263E+07	2.5E-09	5.7E-06
S229808	07/22/97	11:13	08/05/97	10:43	335.5	335.5	1.9E-16	5.2E-13	3152.0	6.345E+07		1.3E-06
S228315	08/05/97	10:44	08/19/97	09:25	334.7	334.7	2.4E-16	1.0E-13	3025.3	6.075E+07		2.4E-07
S233184	08/19/97	09:27	09/02/97	09:48	336.4	336.4	1.8E-15	1.2E-12	1243.4	2.509E+07	1.8E-09	1.2E-06
S234334	09/02/97	09:51	09/16/97	09:55	336.1	336.1	1.6E-16	8.7E-14	3152.0	6.355E+07		2.2E-07
S236010	09/16/97	09:57	09/30/97	10:29	336.5	336.5	3.7E-16	1.5E-13	3152.0	6.365E+07		4.8E-07
S237084	09/30/97	10:29	10/14/97	13:26	339.0	339.0	6.3E-16	1.6E-13	3152.0	6.410E+07	1.6E-09	4.1E-07
S238606	10/14/97	13:27	10/28/97	06:46	331.3	331.3	7.4E-16	3.4E-13	3152.0	6.266E+07	1.8E-09	8.5E-07
S239643	10/28/97	06:48	11/11/97	11:41	338.9	338.9	8.4E-16	2.0E-13	3152.0	6.409E+07	2.1E-09	5.1E-07
S241566	11/11/97	11:42	11/25/97	18:53	343.2	343.2	3.7E-16	1.1E-13	3152.0	6.490E+07		2.8E-07
S242093	11/25/97	18:54	12/09/97	10:54	328.0	328.0	2.9E-16	8.4E-14	3152.0	6.203E+07		2.1E-07
S243292	12/09/97	10:59	12/22/97	17:15	318.3	318.3	3.7E-16	8.0E-14	3152.0	6.019E+07		1.9E-07
SXXXXX	12/22/97	17:15	12/31/97	23:59	222.7		3.7E-16	8.0E-14	3152.0	4.212E+07		1.3E-07
Sum:					8759	8383			Total Releases:	1.580E+09	2.931E-08	1.669E-05
									ERS Releases:	1.6E+09	2.9E-08	1.7E-05
									Percent Difference:	-1.3%	1.1%	-1.9%

EAST TANK FARMS RELEASE CALCULATIONS

296-A-17: 241-AY/AZ Tank Farm Stack (E059)

Particulate Correction Factor: 0.71
 AgZ Correction Factor: 0.87

Cs-137 Releases

EDP Code	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Cs-137 Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Cs-137 Release (Ci)
E026	01/01/97	00:00	02/11/97	11:28	995.5		-4.1E-15	3003.0	1.794E+08	
E026	02/11/97	11:28	02/18/97	13:56	170.5	170.5	-4.1E-15	3152.0	3.224E+07	
E026	02/18/97	13:56	05/06/97	13:53	1848.0		2.5E-14	3069.5	3.403E+08	2.8E-07
E026	05/06/97	13:53	05/13/97	10:24	164.5	164.5	5.5E-14	2915.1	2.877E+07	5.2E-08
E026	05/13/97	10:24	09/02/97	09:52	2887.5		2.9E-14	2800.6	4.516E+08	4.3E-07
E026	09/02/97	09:52	09/09/97	09:30	167.6	167.6	3.3E-15	3152.0	3.170E+07	
E026	09/09/97	09:30	12/02/97	11:06	2017.6		2.4E-14	3152.0	3.816E+08	
E026	12/02/97	11:06	12/09/97	11:04	168.0	168.0	4.5E-14	3152.0	3.177E+07	4.7E-08
E026	12/09/97	11:04	12/31/97	23:59	540.9		4.5E-14	3152.0	1.023E+08	1.5E-07
Sum:					8760.0	670.6	Total Releases:		1.580E+09	9.58E-07
E027	01/01/97	00:00	02/11/97	11:28	995.5		-1.5E-15	3003.0	1.794E+08	
E027	02/11/97	11:28	02/18/97	13:56	170.5	170.5	-1.5E-15	3152.0	3.224E+07	
E027	02/18/97	13:56	05/06/97	13:53	1848.0		1.6E-14	3069.5	3.403E+08	1.8E-07
E027	05/06/97	13:53	05/13/97	10:24	164.5	164.5	3.4E-14	2915.1	2.877E+07	3.2E-08
E027	05/13/97	10:24	09/02/97	09:52	2887.5		2.5E-14	2800.6	4.516E+08	3.7E-07
E027	09/02/97	09:52	09/09/97	09:30	167.6	167.6	1.6E-14	3152.0	3.170E+07	1.7E-08
E027	09/09/97	09:30	12/02/97	11:06	2017.6		1.4E-14	3152.0	3.816E+08	1.7E-07
E027	12/02/97	11:06	12/09/97	11:04	168.0	168.0	1.2E-14	3152.0	3.177E+07	
E027	12/09/97	11:04	12/31/97	23:59	540.9		1.2E-14	3152.0	1.023E+08	
Sum:					8760.0	670.6	Total Releases:		1.580E+09	7.70E-07
X059	01/01/97	00:00	03/18/97	14:10	1838.2		1.9E-13	3056.2	3.371E+08	2.6E-06
X059	03/18/97	14:10	06/24/97	14:54	2352.7	2352.5	1.5E-13	3050.7	4.307E+08	2.6E-06
X059	06/24/97	14:54	09/30/97	10:29	2347.6	2347.4	6.6E-13	2781.1	3.917E+08	1.0E-05
X059	09/30/97	10:29	12/22/97	17:15	1998.8	1998.6	2.2E-13	3152.0	3.780E+08	3.3E-06
X059	12/22/97	17:15	12/31/97	23:59	222.7		2.2E-13	3152.0	4.212E+07	3.7E-07
Sum:					8760.0	6698.5	Total Releases:		1.580E+09	1.91E-05
Total Cs-137 Release:									2.09E-05	
ERS Release:									2.0E-05	
Percent Difference:									4.1%	

EAST TANK FARMS RELEASE CALCULATIONS

296-A-17: 241-AZ/AZ Tank Farm Stack (E059)

Particulate Correction Factor: 0.71
 AgZ Correction Factor: 0.87

Sr-90 Releases

EDP Code	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Sr-90 Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Sr-90 Release (Ci)
X059	01/01/97	00:00	03/18/97	14:10	1838.2		1.8E-14	3056.2	3.371E+08	2.4E-07
X059	03/18/97	14:10	06/24/97	14:54	2352.7	2352.5	1.3E-14	3050.7	4.307E+08	2.2E-07
X059	06/24/97	14:54	09/30/97	10:29	2347.6	2347.4	5.5E-14	2781.1	3.917E+08	8.6E-07
X059	09/30/97	10:29	12/22/97	17:15	1998.8	1998.6	1.5E-14	3152.0	3.780E+08	2.3E-07
X059	12/22/97	17:15	12/31/97	23:59	222.7		1.5E-14	3152.0	4.212E+07	2.5E-08
Sum:					8760.0	6698.5	Total Releases:		1.580E+09	1.58E-06
ERS Release:										1.6E-06
Percent Difference:										-1.5%

Pu-238 Releases

EDP Code	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Pu-238 Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Pu-238 Release (Ci)	
X059	01/01/97	00:00	03/18/97	14:10	1838.2		1.8E-17	3056.2	3.371E+08	2.4E-10	
X059	03/18/97	14:10	06/24/97	14:54	2352.7	2352.5	2.3E-17	3050.7	4.307E+08		
X059	06/24/97	14:54	09/30/97	10:29	2347.6	2347.4	4.1E-17	2781.1	3.917E+08	6.4E-10	
X059	09/30/97	10:29	12/22/97	17:15	1998.8	1998.6	-6.9E-18	3152.0	3.780E+08		
X059	12/22/97	17:15	12/31/97	23:59	222.7		-6.9E-18	3152.0	4.212E+07		
Sum:					8760.0	6698.5	Total Releases:			1.580E+09	8.83E-10
					ERS Release:						8.8E-10
					Percent Difference:						0.3%

WEIGHTED STACK FLOW RATES

296-A-17: 241-AY/AZ Tank Farm Stack (E059)

Sample Number	Sampling Periods				Stack Operating Data				Operating Flow Rate (cfm)	Weighted Stack Flow Rate (cfm)	Sample Number
	ON Date	Time	OFF Date	Time	ON Date	Time	OFF Date	Time			
S209198	01/01/97	00:00	01/07/97	10:05	01/01/97	00:00	01/03/97	01:53	3152.0	2763.4	S209198
					01/03/97	01:53	01/03/97	20:53	0.0		
					01/03/97	20:53	01/07/97	10:07	3152.0		
S210553	01/07/97	10:07	01/21/97	10:04	01/07/97	10:07	01/20/97	02:47	3152.0	2981.1	S210553
					01/20/97	02:47	01/20/97	21:00	0.0		
					01/20/97	21:00	01/21/97	10:04	3152.0		
S211842	01/21/97	10:04	02/04/97	14:41	01/21/97	10:04	02/04/97	10:29	3152.0	3112.3	S211842
					02/04/97	10:29	02/04/97	14:43	0.0		
					02/04/97	14:43	02/04/97	20:20	0.0		
S213243	02/04/97	14:43	02/18/97	14:03	02/04/97	20:20	02/18/97	14:04	3152.0	3099.2	S213243
					02/18/97	14:04	03/04/97	02:09	3152.0		
					03/04/97	02:09	03/04/97	13:40	0.0		
S214829	02/18/97	14:04	03/04/97	13:38	02/18/97	14:04	03/04/97	02:09	3152.0	3043.8	S214829
					03/04/97	02:09	03/04/97	13:40	0.0		
					03/04/97	13:40	03/04/97	21:07	0.0		
S216180	03/04/97	13:40	03/18/97	14:10	03/04/97	21:07	03/18/97	14:11	3152.0	3082.2	S216180
					03/18/97	14:11	04/01/97	13:57	3152.0		
					04/01/97	13:57	04/15/97	13:51	3152.0		
S217551	03/18/97	14:11	04/01/97	13:57	03/18/97	14:11	04/01/97	13:57	3152.0	3152.0	S217551
S218922	04/01/97	13:57	04/15/97	13:50	04/01/97	13:57	04/15/97	13:51	3152.0		
S220077	04/15/97	13:51	04/29/97	09:59	04/15/97	13:51	04/24/97	15:51	3152.0		
					04/24/97	15:51	04/25/97	21:02	0.0	2875.1	S220077
					04/25/97	21:02	04/29/97	10:00	3152.0		
S221426	04/29/97	10:00	05/13/97	10:16	04/29/97	10:00	05/12/97	22:02	3152.0		
					05/12/97	22:02	05/13/97	10:24	0.0	3036.1	S221426
					05/13/97	10:24	05/14/97	09:40	0.0		
S222309	05/13/97	10:24	05/27/97	14:31	05/13/97	10:24	05/14/97	09:40	0.0		
					05/14/97	09:40	05/27/97	14:33	3152.0	2936.4	S222309
S224407	05/27/97	14:33	06/10/97	13:34	05/27/97	14:33	06/10/97	13:35	3152.0		
S226022	06/10/97	13:35	06/24/97	14:54	06/10/97	13:35	06/24/97	14:56	3152.0		
S227318	06/24/97	14:56	07/08/97	09:48	06/24/97	14:56	07/08/97	09:49	3152.0	3152.0	S227318
					07/08/97	09:49	07/19/97	09:40	3152.0		
S228753	07/08/97	09:49	07/22/97	11:11	07/08/97	09:49	07/19/97	09:40	3152.0		
					07/19/97	09:40	07/21/97	20:46	0.0	2599.9	S228753
					07/21/97	20:46	07/22/97	11:13	3152.0		
S229808	07/22/97	11:13	08/05/97	10:43	07/22/97	11:13	08/05/97	10:44	3152.0		
S228315	08/05/97	10:44	08/19/97	09:25	08/05/97	10:44	08/18/97	20:00	3152.0	3025.3	S228315
					08/18/97	20:00	08/19/97	09:27	0.0		
					08/19/97	09:27	08/27/97	21:09	0.0		
S233184	08/19/97	09:27	09/02/97	09:48	08/19/97	09:27	08/27/97	21:09	0.0	1243.4	S233184
					08/27/97	21:09	09/02/97	09:51	3152.0		
S234334	09/02/97	09:51	09/16/97	09:55	09/02/97	09:51	09/16/97	09:57	3152.0		
S236010	09/16/97	09:57	09/30/97	10:29	09/16/97	09:57	09/30/97	10:29	3152.0	3152.0	S236010
S237084	09/30/97	10:29	10/14/97	13:26	09/30/97	10:29	10/14/97	13:27	3152.0		
					10/14/97	13:27	10/28/97	08:48	3152.0		
S238606	10/14/97	13:27	10/28/97	08:46	10/14/97	13:27	10/28/97	08:48	3152.0	3152.0	S238606
S239543	10/28/97	08:48	11/11/97	11:41	10/28/97	08:48	11/11/97	11:42	3152.0		
S241566	11/11/97	11:42	11/25/97	18:53	11/11/97	11:42	11/25/97	18:54	3152.0		
S242093	11/25/97	18:54	12/09/97	10:54	11/25/97	18:54	12/09/97	10:59	3152.0	3152.0	S242093
S243292	12/09/97	10:59	12/22/97	17:15	12/09/97	10:59	12/22/97	17:15	3152.0		
SXXXXX	12/22/97	17:15	12/31/97	23:59	12/22/97	17:15	12/31/97	23:59	3152.0		

Total Discharge Volume (cuft): 1.580E+09

WEIGHTED STACK FLOW RATES

296-A-17: 241-AZ Tank Farm Stack (AgZ Sampler E026)

Sample Number	Sampling Periods				Stack Operating Data				Operating Flow Rate (cfm)	Weighted Stack Flow Rate (cfm)	Sample Number
	ON Date	Time	OFF Date	Time	ON Date	Time	OFF Date	Time			
SXXXXX	01/01/97	00:00	02/11/97	11:28	01/01/97	00:00	01/03/97	01:53	3152.0		
					01/03/97	01:53	01/03/97	20:53	0.0		
					01/03/97	20:53	01/20/97	02:47	3152.0		
					01/20/97	02:47	01/20/97	21:00	0.0		
					01/20/97	21:00	02/04/97	10:29	3152.0		
					02/04/97	10:29	02/04/97	20:20	0.0		
					02/04/97	20:20	02/11/97	11:28	3152.0	3003.0	SXXXXX
S213613	02/11/97	11:28	02/18/97	13:56	02/11/97	11:28	02/18/97	13:56	3152.0	3152.0	S213613
SXXXXX	02/18/97	13:56	05/06/97	13:53	02/18/97	13:56	03/04/97	02:09	3152.0		
					03/04/97	02:09	03/04/97	21:07	0.0		
					03/04/97	21:07	04/24/97	15:51	3152.0		
					04/24/97	15:51	04/25/97	21:14	0.0		
					04/25/97	21:14	05/06/97	13:53	3152.0	3069.5	SXXXXX
S220099	05/06/97	13:53	05/13/97	10:24	05/06/97	13:53	05/12/97	22:02	3152.0		
					05/12/97	22:02	05/13/97	10:24	0.0	2915.1	S220099
SXXXXX	05/13/97	10:24	09/02/97	09:52	05/13/97	10:24	05/14/97	09:47	0.0		
					05/14/97	09:47	07/19/97	09:40	3152.0		
					07/19/97	09:40	07/21/97	20:46	0.0		
					07/21/97	20:46	08/18/97	20:00	3152.0		
					08/18/97	20:00	08/27/97	21:09	0.0		
					08/27/97	21:09	09/02/97	09:52	3152.0	2800.6	SXXXXX
S232072	09/02/97	09:52	09/09/97	09:30	09/02/97	09:52	09/09/97	09:30	3152.0	3152.0	S232072
SXXXXX	09/09/97	09:30	12/02/97	11:06	09/09/97	09:30	12/02/97	11:06	3152.0	3152.0	SXXXXX
S242116	12/02/97	11:06	12/09/97	11:04	12/02/97	11:06	12/09/97	11:04	3152.0	3152.0	S242116
SXXXXX	12/09/97	11:04	12/31/97	23:59	12/09/97	11:04	12/31/97	23:59	3152.0	3152.0	SXXXXX

Total Discharge Volume (cuft): 1.580E+09

EAST TANK FARMS RELEASE CALCULATIONS

296-P-26: 241-AY/AZ Tank Farm Backup Stack (E039)

Particulate Correction Factor: 0.70
 AgZ Correction Factor: 0.87

Total Alpha & Beta Releases

Sample Number	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Alpha Conc. (uCi/mL)	Beta Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Alpha Release (Ci)	Beta Release (Ci)
S209197	01/01/97	00:00	01/07/97	10:11	154.2		-7.9E-16	2.9E-14	823.5	5.768E+06		6.8E-09
S211841	01/07/97	10:12	02/04/97	14:46	676.6	24.2	1.0E-14	3.0E-14	168.3	6.832E+06		8.3E-09
S213242	02/04/97	14:49	02/18/97	14:07	335.3	5.7	3.0E-14	4.8E-13	84.0	1.690E+06		3.3E-08
S214628	02/18/97	14:09	03/04/97	13:33	335.4	335.4	6.8E-16	2.2E-15	172.5	3.471E+06		
S216177	03/04/97	13:35	03/18/97	14:16	336.7	336.7	5.7E-15	1.0E-13	113.2	2.287E+06		9.3E-09
S220076	03/18/97	14:17	04/29/97	10:03	1003.8	29.3	-2.7E-16	4.3E-15	146.1	6.919E+06		
S221425	04/29/97	10:05	05/13/97	10:38	336.6	26.0	2.9E-15	1.0E-14	189.7	3.831E+06		1.5E-09
S222308	05/13/97	10:39	05/27/97	14:35	339.9	23.1	5.0E-16	1.6E-14	344.3	7.022E+06		4.5E-09
S228752	05/27/97	14:38	07/22/97	11:16	1340.6	59.2	4.3E-16	9.8E-15	223.1	1.795E+07		7.1E-09
S228314	07/22/97	11:17	08/19/97	09:22	670.1	13.3	-5.3E-16	7.9E-14	101.2	4.069E+06		1.3E-08
S233183	08/19/97	09:24	09/02/97	09:57	336.6	203.8	-4.4E-17	3.4E-15	3063.4	6.186E+07		8.5E-09
XXXXXX	09/02/97	09:57	12/31/97	23:59	2894.0		-4.4E-17	3.4E-15	0.0	0.000E+00		0.0E+00
Sum:					8760	1057			Total Releases:	1.237E+08	ND	9.185E-08
									ERS Releases:	1.2E+08	ND	9.2E-08
									Percent Difference:	3.0%	0.0%	-0.2%

EAST TANK FARMS RELEASE CALCULATIONS

296-P-26: 241-AY/AZ Tank Farm Backup Stack (E039)

Particulate Correction Factor: 0.70
 AgZ Correction Factor: 0.87

Cs-137 Releases

EDP Code	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Cs-137 Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Cs-137 Release (Ci)
X039	01/01/97	00:00	09/02/97	09:57	5866.0	1075.7	2.2E-15	351.5	1.237E+08	1.1E-08
X039	09/02/97	09:57	12/31/97	23:59	2894.0		2.2E-15	0.0	0.000E+00	0.0E+00
Sum:					8760.0	1075.7	Total Releases:		1.237E+08	1.10E-08
ERS Release:										1.1E-08
Percent Difference:										0.1%

Am-241 Releases

EDP Code	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Am-241 Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Am-241 Release (Ci)
X039	01/01/97	00:00	09/02/97	09:57	5866.0	1075.7	2.9E-16	351.5	1.237E+08	1.5E-09
X039	09/02/97	09:57	12/31/97	23:59	2894.0		2.9E-16	0.0	0.000E+00	0.0E+00
Sum:					8760.0	1075.7	Total Releases:		1.237E+08	1.45E-09
ERS Release:										1.5E-09
Percent Difference:										-3.4%

WEIGHTED STACK FLOW RATES

296-P-26: 241-AY/AZ Tank Farm Backup Stack (E039)

Sample Number	Sampling Periods				Stack Operating Data				Operating Flow Rate (cfm)	Weighted Stack Flow Rate (cfm)	Sample Number
	ON Date	Time	OFF Date	Time	ON Date	Time	OFF Date	Time			
S209197	01/01/97	00:00	01/07/97	10:11	01/01/97	00:00	01/03/97	01:53	0.0		
					01/03/97	01:53	01/03/97	20:53	5060.0		
					01/03/97	20:53	01/07/97	10:12	0.0	623.5	S209197
S211841	01/07/97	10:12	02/04/97	14:46	01/07/97	10:12	01/20/97	02:47	0.0		
					01/20/97	02:47	01/20/97	21:00	5060.0		
					01/20/97	21:00	02/04/97	10:29	0.0		
					02/04/97	10:29	02/04/97	14:46	5060.0	168.3	S211841
S213242	02/04/97	14:49	02/18/97	14:07	02/04/97	14:46	02/04/97	20:20	5060.0		
					02/04/97	20:20	02/18/97	14:09	0.0	84.0	S213242
S214828	02/18/97	14:09	03/04/97	13:33	02/18/97	14:09	03/04/97	02:09	0.0		
					03/04/97	02:09	03/04/97	13:35	5060.0	172.5	S214828
S216177	03/04/97	13:35	03/18/97	14:16	03/04/97	13:35	03/04/97	21:07	5060.0		
					03/04/97	21:07	03/18/97	14:17	0.0	113.2	S216177
S220076	03/18/97	14:17	04/29/97	10:03	03/18/97	14:17	04/24/97	15:51	0.0		
					04/24/97	15:51	04/25/97	21:14	5060.0		
					04/25/97	21:14	04/29/97	10:05	0.0	148.1	S220076
S221425	04/29/97	10:05	05/13/97	10:38	04/29/97	10:05	05/12/97	22:02	0.0		
					05/12/97	22:02	05/13/97	10:39	5060.0	189.7	S221425
S222308	05/13/97	10:39	05/27/97	14:35	05/13/97	10:39	05/14/97	09:47	5060.0		
					05/14/97	09:47	05/27/97	14:38	0.0	344.3	S222308
S228752	05/27/97	14:38	07/22/97	11:16	05/27/97	14:38	07/19/97	09:40	0.0		
					07/19/97	09:40	07/21/97	20:46	5060.0		
					07/21/97	20:46	07/22/97	11:17	0.0	223.1	S228752
S228314	07/22/97	11:17	08/19/97	09:22	07/22/97	11:17	08/18/97	20:00	0.0		
					08/18/97	20:00	08/19/97	09:24	5060.0	101.2	S228314
S233183	08/19/97	09:24	09/02/97	09:57	08/19/97	09:24	08/27/97	21:09	5060.0		
					08/27/97	21:09	09/02/97	09:57	0.0	3063.4	S233183
SXXXXX	09/02/97	09:57	12/31/97	23:59	09/02/97	09:57	12/31/97	23:59	0.0	0.0	SXXXXX

Total Discharge Volume (cuft): 1.237E+08

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6.2.3 296-A-18 Release Calculations

EAST TANK FARMS RELEASE CALCULATIONS

296-A-18: Tank 241-AY-101 Annulus Stack (E060)

Particulate Correction Factor: 0.73
 AgZ Correction Factor: N/A

Total Alpha & Beta Releases

Sample Number	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Alpha Conc. (uCi/mL)	Beta Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Alpha Release (Ci)	Beta Release (Ci)
SXXXXX	01/01/97	00:00	05/28/97	13:37	3565.6		8.2E-16	6.2E-16	1.3	2.781E+05	8.8E-12	6.7E-12
S224408	05/29/97	13:37	08/10/97	13:24	287.8	287.8	8.2E-16	6.2E-16	1506.0	2.600E+07	8.3E-10	6.3E-10
S226023	08/10/97	13:24	08/24/97	14:46	337.4	337.4	1.8E-16	5.9E-15	1501.6	3.040E+07	2.1E-10	7.0E-09
S227319	08/24/97	14:47	07/08/97	09:43	330.9	330.9	3.5E-16	5.5E-16	1456.0	2.891E+07	3.9E-10	6.2E-10
S228754	07/08/97	09:48	07/22/97	11:02	337.2	337.2	1.1E-15	2.9E-15	699.7	1.416E+07	6.0E-10	1.6E-09
SXXXXX	07/22/97	11:02	12/31/97	23:59	3901.0		1.1E-15	2.9E-15	1023.1	2.395E+08	1.0E-08	2.7E-08
Sum:					8760	1293			Total Releases:	3.392E+08	1.226E-08	3.674E-08
									ERS Releases:	3.4E+08	1.2E-08	3.7E-08
									Percent Difference:	-0.2%	2.2%	-0.7%

WEIGHTED STACK FLOW RATES

296-A-18: Tank 241-AY-101 Annulus Stack (E060)

Sample Number	Sampling Periods				Stack Operating Data				Operating Flow Rate (cfm)	Weighted Stack Flow Rate (cfm)	Sample Number
	ON Date	Time	OFF Date	Time	ON Date	Time	OFF Date	Time			
SXXXXX	01/01/97	00:00	05/29/97	13:37	01/01/97	00:00	05/29/97	10:38	0.0		
					05/29/97	10:38	05/29/97	13:37	1506.0	1.3	SXXXXX
S224408	05/29/97	13:37	06/10/97	13:24	05/29/97	13:37	06/10/97	13:24	1506.0	1506.0	S224408
S226023	06/10/97	13:24	06/24/97	14:48	06/10/97	13:24	06/16/97	19:59	1506.0		
					06/16/97	19:59	06/16/97	20:11	0.0		
					06/16/97	20:11	06/23/97	19:44	1506.0		
					06/23/97	19:44	06/23/97	20:31	0.0		
					06/23/97	20:31	06/24/97	14:47	1506.0	1501.6	S226023
S227319	06/24/97	14:47	07/08/97	09:43	06/24/97	14:47	06/27/97	10:33	1506.0		
					06/27/97	10:33	06/27/97	20:47	0.0		
					06/27/97	20:47	06/30/97	20:24	1506.0		
					06/30/97	20:24	06/30/97	21:07	0.0		
					06/30/97	21:07	07/07/97	20:35	1506.0		
					07/07/97	20:35	07/07/97	20:37	0.0		
					07/07/97	20:37	07/08/97	09:48	1506.0	1456.0	S227319
S228754	07/08/97	09:48	07/22/97	11:02	07/08/97	09:48	07/14/97	22:29	1506.0		
					07/14/97	22:29	07/22/97	11:02	0.0	699.7	S228754
SXXXXX	07/22/97	11:02	12/31/97	23:59	07/22/97	11:02	09/12/97	14:00	0.0		
					09/12/97	14:00	12/31/97	23:59	1506.0	1023.1	SXXXXX

Total Discharge Volume (cuft): 3.392E+08

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6.2.4 296-A-19 Release Calculations

EAST TANK FARMS RELEASE CALCULATIONS

296-A-19: Tank 241-AY-102 Annulus Stack (E061)

Particulate Correction Factor: 0.73
 AgZ Correction Factor: N/A

Total Alpha & Beta Releases

Sample Number	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Alpha Conc. (uCi/mL)	Beta Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Alpha Release (Ci)	Beta Release (Ci)
XXXXXX	01/01/97	00:00	02/18/97	13:50	1165.8		-9.4E-17	1.4E-15	3.8	2.658E+05		1.4E-11
S214830	02/18/97	13:52	03/04/97	13:45	335.9	335.6	-9.4E-17	1.4E-15	1584.0	3.192E+07		1.7E-09
S216181	03/04/97	13:47	03/18/97	14:04	336.3	316.8	3.0E-16	9.1E-16	1496.4	3.023E+07		1.1E-09
XXXXXX	03/18/97	14:04	09/16/97	09:37	4363.6		5.6E-16	1.2E-15	1419.3	3.719E+08	8.1E-09	1.7E-08
S237086	09/16/97	09:37	10/14/97	13:03	675.4	675.4	8.2E-16	1.4E-15	1584.0	6.419E+07	2.0E-09	3.5E-09
XXXXXX	10/14/97	13:03	12/31/97	23:59	1882.9		8.2E-16	1.4E-15	643.1	7.265E+07	2.3E-09	3.9E-09
Sum:					8760	1328			Total Releases:	5.709E+08	1.243E-08	2.690E-08
									ERS Releases:	5.7E+08	1.0E-08	2.7E-08
									Percent Difference:	0.2%	19.5%	-0.4%

WEIGHTED STACK FLOW RATES

296-A-19: Tank 241-AY-102 Annulus Stack (E061)

Sample Number	Sampling Periods				Stack Operating Data				Operating Flow Rate (cfm)	Weighted Stack Flow Rate (cfm)	Sample Number
	ON Date	Time	OFF Date	Time	ON Date	Time	OFF Date	Time			
SXXXXX	01/01/97	00:00	02/18/97	13:50	01/01/97	00:00	02/18/97	11:00	0		
					02/18/97	11:00	02/18/97	13:50	1584.0	3.8	SXXXXX
S214830	02/18/97	13:52	03/04/97	13:45	02/18/97	13:52	03/04/97	13:45	1584.0	1584.0	S214830
S216181	03/04/97	13:47	03/18/97	14:04	03/04/97	13:47	03/04/97	21:05	1584.0		
					03/04/97	21:05	03/05/97	13:55	0.0		
					03/05/97	13:55	03/10/97	20:30	1584.0		
					03/10/97	20:30	03/10/97	21:50	0.0		
					03/10/97	21:50	03/18/97	14:04	1584.0	1498.4	S216181
SXXXXX	03/18/97	14:04	09/16/97	09:37	03/18/97	14:04	03/24/97	20:10	1584.0		
					03/24/97	20:10	03/28/97	09:44	0.0		
					03/28/97	09:44	04/21/97	01:27	1584.0		
					04/21/97	01:27	04/21/97	14:20	0.0		
					04/21/97	14:20	04/24/97	15:54	1584.0		
					04/24/97	15:54	04/24/97	21:12	0.0		
					04/24/97	21:12	05/12/97	07:45	1584.0		
					05/12/97	07:45	05/27/97	18:17	0.0		
					05/27/97	18:17	06/03/97	19:50	1584.0		
					06/03/97	19:50	06/04/97	09:29	0.0		
					06/04/97	09:29	06/27/97	10:15	1584.0		
					06/27/97	10:15	06/27/97	20:38	0.0		
					06/27/97	20:38	07/16/97	13:13	1584.0		
					07/16/97	13:13	07/16/97	14:22	0.0		
					07/16/97	14:22	07/21/97	20:28	1584.0		
					07/21/97	20:28	07/21/97	21:35	0.0		
					07/21/97	21:35	09/15/97	19:32	1584.0		
					09/15/97	19:32	09/15/97	20:33	0.0		
S237086	09/16/97	09:37	10/14/97	13:03	09/15/97	20:33	09/16/97	09:37	1584.0	1419.3	SXXXXX
					09/16/97	09:37	10/09/97	18:29	1584.0		
					10/09/97	18:29	10/09/97	18:30	0.0		
					10/09/97	18:30	10/14/97	13:03	1584.0	1584.0	S237086
SXXXXX	10/14/97	13:03	12/31/97	23:59	10/14/97	13:03	11/15/97	09:32	1584.0		
					11/15/97	09:32	12/31/97	23:59	0.0	643.1	SXXXXX

Total Discharge Volume (cuft): 5.709E+08

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6.2.5 296-A-25 Release Calculations

EAST TANK FARMS RELEASE CALCULATIONS

296-A-25: 244-A Lift Station Stack (E080)

Particulate Correction Factor: 0.81
 AgZ Correction Factor: N/A

Total Alpha & Beta Releases

Sample Number	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Alpha Conc. (uCi/mL)	Beta Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Alpha Release (Ci)	Beta Release (Ci)
S167710	01/01/97	00:00	02/11/97	09:23	993.4		-1.3E-16	1.0E-15	0.2	1.192E+04		4.2E-13
S213247	02/11/97	08:26	02/18/97	10:11	168.8	168.8	-1.3E-16	1.0E-15	138.1	1.398E+06		4.9E-11
S214833	02/18/97	10:13	03/04/97	09:55	335.7	335.6	6.3E-16	9.7E-14	162.9	3.281E+06	7.2E-11	1.1E-08
S216184	03/04/97	09:57	03/18/97	13:12	339.3	314.0	2.0E-15	1.7E-13	150.9	3.072E+06	2.1E-10	1.8E-08
S217555	03/18/97	13:13	04/01/97	10:59	333.8	25.5	3.7E-15	2.3E-12	12.2	2.443E+05		2.0E-08
S218826	04/01/97	11:00	04/15/97	10:17	335.3	334.4	1.8E-16	9.2E-14	163.0	3.279E+06		1.1E-08
S220081	04/15/97	10:20	04/29/97	10:32	336.2	336.3	-2.5E-17	4.4E-14	163.0	3.288E+06		5.1E-09
S221430	04/29/97	10:33	05/13/97	13:10	338.6	338.0	2.8E-16	1.9E-13	163.0	3.312E+06		2.2E-08
S223313	05/13/97	13:11	05/27/97	19:52	342.7	329.6	6.5E-16	1.1E-13	163.0	3.351E+06	7.6E-11	1.3E-08
S224412	05/27/97	19:54	06/10/97	10:03	326.2	326.0	1.9E-16	2.6E-14	163.0	3.190E+06		2.9E-09
S226027	06/10/97	10:05	06/24/97	14:19	340.2	313.4	3.0E-16	4.6E-14	150.1	3.064E+06		4.9E-09
S227323	06/24/97	14:20	07/08/97	11:00	332.7	332.6	7.0E-17	4.3E-14	163.0	3.253E+06		4.9E-09
S228758	07/08/97	11:01	07/22/97	14:45	339.7	339.8	7.7E-17	3.3E-14	163.0	3.323E+06		3.8E-09
S229813	07/22/97	14:46	08/05/97	09:31	330.8	266.3	3.8E-16	1.6E-13	131.2	2.604E+06		1.5E-08
S243297	08/05/97	09:32	12/30/97	09:12	3527.7	3527.7	6.8E-15	6.8E-12	10.2	2.159E+06	5.1E-10	5.0E-07
SXXXXX	12/30/97	09:12	12/31/97	23:59	38.8		6.8E-15	6.8E-12	0.0	0.000E+00	0.0E+00	0.0E+00
Sum:					8760	7288			Total Releases:	3.883E+07	8.765E-10	6.289E-07
									ERS Releases:	3.9E+07	8.8E-10	6.3E-07
									Percent Difference:	-0.4%	-0.4%	-0.2%

EAST TANK FARMS RELEASE CALCULATIONS

296-A-25: 244-A Lift Station Stack (E080)

Particulate Correction Factor: 0.81
 AgZ Correction Factor: N/A

Cs-137 Releases

EDP Code	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Cs-137 Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Cs-137 Release (Ci)
X080	01/01/97	00:00	03/18/97	13:12	1837.2		3.4E-13	70.4	7.763E+06	9.2E-08
X080	03/18/97	13:13	06/24/97	14:19	2353.1	2003.3	1.4E-13	139.7	1.973E+07	9.7E-08
X080	06/24/97	14:20	08/05/97	09:31	1003.2	938.7	9.5E-14	152.5	9.180E+06	3.0E-08
X080	08/05/97	09:32	12/30/97	09:12	3527.7	3527.7	5.6E-12	10.2	2.159E+06	4.2E-07
X080	12/30/97	09:12	12/31/97	23:59	38.8		5.6E-12	0.0	0.000E+00	0.0E+00
Sum:					8759.9	6469.7	Total Releases:		3.883E+07	6.42E-07
					ERS Release:					6.4E-07
					Percent Difference:					0.3%

Pu-239/240 Releases

EDP Code	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Pu-239/240 Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Pu-239/240 Release (Ci)
X080	01/01/97	00:00	03/18/97	13:12	1837.2		2.8E-17	70.4	7.763E+06	7.6E-12
X080	03/18/97	13:13	06/24/97	14:19	2353.1	2003.3	1.9E-17	139.7	1.973E+07	1.3E-11
X080	06/24/97	14:20	08/05/97	09:31	1003.2	938.7	8.7E-18	152.5	9.180E+06	
X080	08/05/97	09:32	12/30/97	09:12	3527.7	3527.7	4.8E-16	10.2	2.159E+06	3.6E-11
X080	12/30/97	09:12	12/31/97	23:59	38.8		4.8E-16	0.0	0.000E+00	0.0E+00
Sum:					8759.9	6469.7	Total Releases:		3.883E+07	5.69E-11
ERS Release:										5.7E-11
Percent Difference:										-0.1%

WEIGHTED STACK FLOW RATES

296-A-25: 244-A Lift Station Stack (E080)

Sample Number	Sampling Periods				Stack Operating Data				Operating Flow Rate (cfm)	Weighted Stack Flow Rate (cfm)	Sample Number
	ON Date	Time	OFF Date	Time	ON Date	Time	OFF Date	Time			
S167710	01/01/97	00:00	02/11/97	09:23	01/01/97	00:00	02/11/97	09:26		0.2	S167710
S213247	02/11/97	09:26	02/18/97	10:11	02/11/97	09:26	02/18/97	10:13		136.1	S213247
S214833	02/18/97	10:13	03/04/97	09:55	02/18/97	10:13	03/04/97	09:57		162.9	S214833
S216184	03/04/97	09:57	03/18/97	13:12	03/04/97	09:57	03/18/97	13:13		150.9	S216184
S217555	03/18/97	13:13	04/01/97	10:59	03/18/97	13:13	03/31/97	09:55	0.0		
					03/31/97	09:55	04/01/97	11:00	163.0	12.2	S217555
S218926	04/01/97	11:00	04/15/97	10:17	04/01/97	11:00	04/15/97	10:17	163.0	163.0	S218926
S220081	04/15/97	10:20	04/29/97	10:32	04/15/97	10:20	04/29/97	10:32	163.0	163.0	S220081
S221430	04/29/97	10:33	05/13/97	13:10	04/29/97	10:33	05/13/97	13:10	163.0	163.0	S221430
S222313	05/13/97	13:11	05/27/97	19:52	05/13/97	13:11	05/27/97	19:52	163.0	163.0	S222313
S224412	05/27/97	19:54	06/10/97	10:03	05/27/97	19:54	06/10/97	10:03	163.0	163.0	S224412
S226027	06/10/97	10:05	06/24/97	14:19	06/10/97	10:05	06/20/97	08:27	163.0		
					06/20/97	08:27	06/21/97	11:17	0.0		
					06/21/97	11:17	06/24/97	14:20	163.0	150.1	S226027
S227323	06/24/97	14:20	07/08/97	11:00	06/24/97	14:20	07/08/97	11:00	163.0	163.0	S227323
S228758	07/08/97	11:01	07/22/97	14:45	07/08/97	11:01	07/22/97	14:45	163.0	163.0	S228758
S229813	07/22/97	14:46	08/05/97	09:31	07/22/97	14:46	07/30/97	09:53	163.0		
					07/30/97	09:53	08/01/97	13:47	0.0		
					08/01/97	13:47	08/04/97	21:00	163.0		
					08/04/97	21:00	08/05/97	09:32	0.0	131.2	S229813
S243297	08/05/97	09:32	12/30/97	09:12	08/05/97	09:32	12/30/97	09:12		10.2	S243297
SXXXXX	12/30/97	09:12	12/31/97	23:59	12/30/97	09:12	12/31/97	23:59	0.0	0.0	SXXXXX

Total Discharge Volume (cuft): 3.883E+07

6.2.6 296-A-28 Release Calculations

EAST TANK FARMS RELEASE CALCULATIONS

296-A-28: 241-AW Tank Farm Annuli Stack (E272)

Particulate Correction Factor: 0.47
 AgZ Correction Factor: N/A

Total Alpha & Beta Releases

Sample Number	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Alpha Conc. (uCi/mL)	Beta Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Alpha Release (Ci)	Beta Release (Ci)
S209207	01/01/97	00:00	01/07/97	08:24	152.4		4.9E-16	5.3E-16	5250.0	4.801E+07		1.5E-08
S210564	01/07/97	08:25	01/21/97	13:11	340.8	340.8	8.5E-17	2.3E-15	5250.0	1.073E+08		1.5E-08
S211851	01/21/97	13:11	02/04/97	10:08	333.0	333.0	1.8E-16	2.2E-15	5250.0	1.049E+08		1.4E-08
S213253	02/04/97	10:10	02/18/97	10:48	336.6		2.2E-16	3.2E-13	5250.0	1.060E+08		2.0E-06
S214839	02/18/97	10:49	03/04/97	09:13	334.4		5.2E-16	2.5E-15	5106.3	1.025E+08		1.5E-08
S216191	03/04/97	09:14	03/18/97	14:49	341.6	341.6	2.3E-16	7.3E-16	5250.0	1.076E+08		4.7E-09
SXXXXX	03/18/97	14:49	12/31/97	23:59	6921.2		2.3E-16	7.3E-16	5238.4	2.175E+09		9.6E-08
Sum:					8760	1686	Total Releases:		2.752E+09		ND	2.205E-06
							ERS Releases:		2.8E+09		ND	2.2E-06
							Percent Difference:		-1.8%		0.0%	0.2%

WEIGHTED STACK FLOW RATES

296-A-28: 241-AW Tank Farm Annuli Stack (E272)

Sample Number	Sampling Periods				Stack Operating Data				Operating Flow Rate (cfm)	Weighted Stack Flow Rate (cfm)	Sample Number
	ON Date	Time	OFF Date	Time	ON Date	Time	OFF Date	Time			
S209207	01/01/97	00:00	01/07/97	08:24	01/01/97	00:00	01/07/97	08:24	5250.0	5250.0	S209207
S210564	01/07/97	08:25	01/21/97	13:11	01/07/97	08:25	01/21/97	13:11	5250.0	5250.0	S210564
S211851	01/21/97	13:11	02/04/97	10:08	01/21/97	13:11	02/04/97	10:08	5250.0	5250.0	S211851
S213253	02/04/97	10:10	02/18/97	10:48	02/04/97	10:10	02/18/97	10:48	5250.0	5250.0	S213253
S214839	02/18/97	10:49	03/04/97	09:13	02/18/97	13:08	02/26/97	16:12	5250.0		
					02/26/97	16:12	02/27/97	10:23	2625.0		
					02/27/97	10:23	03/04/97	09:13	5250.0	5106.3	S214839
S216191	03/04/97	09:14	03/18/97	14:49	03/04/97	09:13	03/18/97	14:49	5250.0	5250.0	S216191
SXXXXX	03/18/97	14:49	12/31/97	23:59	03/18/97	14:49	04/06/97	10:23	5250.0		
					04/06/97	10:23	04/09/97	01:42	0.0		
					04/09/97	01:42	12/31/97	23:59	5250.0	5238.4	SXXXXX

Total Discharge Volume (cuft): 2.751E+09

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6.2.7 296-A-30 Release Calculations

EAST TANK FARMS RELEASE CALCULATIONS

296-A-30: 241-AN Tank Farm Annuli Stack (E903)

Particulate Correction Factor: 0.55
 AgZ Correction Factor: N/A

Total Alpha & Beta Releases

Sample Number	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Alpha Conc. (uCi/mL)	Beta Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Alpha Release (Ci)	Beta Release (Ci)
S209213	01/01/97	00:00	01/07/97	09:15	153.3		3.5E-16	2.7E-15	3500.0	3.218E+07		4.5E-09
S210571	01/07/97	09:16	01/21/97	13:41	340.4	340.4	5.9E-16	2.1E-15	3500.0	7.149E+07	2.2E-09	7.7E-08
S211858	01/21/97	13:42	02/04/97	10:53	333.2	333.2	2.1E-16	2.5E-15	3500.0	6.997E+07		9.0E-09
S213260	02/04/97	10:55	02/18/97	13:06	338.2	338.2	4.3E-17	3.6E-15	3500.0	7.102E+07		1.3E-08
S214846	02/18/97	13:08	03/04/97	10:38	333.5	333.5	4.4E-16	1.3E-15	3500.0	7.004E+07		4.7E-09
S216198	03/04/97	10:39	03/18/97	10:47	336.1	336.1	4.1E-16	1.5E-15	3500.0	7.059E+07	1.5E-09	5.5E-09
SXXXXX	03/18/97	10:47	12/31/97	23:59	6925.2		4.1E-16	1.5E-15	5396.9	2.242E+09	4.7E-08	1.7E-07
Sum:					8760	1681			Total Releases:	2.628E+09	5.100E-08	2.177E-07
									ERS Releases:	2.6E+09	5.1E-08	2.2E-07
									Percent Difference:	1.1%	0.0%	-1.0%

WEIGHTED STACK FLOW RATES

296-A-30: 241-AN Tank Farm Annuli Stack (E903)

Sample Number	Sampling Periods				Stack Operating Data				Operating Flow Rate (cfm)	Weighted Stack Flow Rate (cfm)	Sample Number
	ON		OFF		ON		OFF				
	Date	Time	Date	Time	Date	Time	Date	Time			
S209213	01/01/97	00:00	01/07/97	09:15	01/01/97	00:00	01/07/97	09:15	3500.0	3500.0	S209213
S210571	01/07/97	09:16	01/21/97	13:41	01/07/97	09:16	01/21/97	13:41	3500.0	3500.0	S210571
S211858	01/21/97	13:42	02/04/97	10:53	01/21/97	13:42	02/04/97	10:53	3500.0	3500.0	S211858
S213260	02/04/97	10:55	02/18/97	13:06	02/04/97	10:55	02/18/97	13:06	3500.0	3500.0	S213260
S214846	02/18/97	13:08	03/04/97	10:38	02/18/97	13:08	03/04/97	10:38	3500.0	3500.0	S214846
S216198	03/04/97	10:39	03/18/97	10:47	03/04/97	10:39	03/18/97	10:47	3500.0	3500.0	S216198
SXXXXX	03/18/97	10:47	12/31/97	23:59	03/18/97	10:47	04/10/97	13:52	3500.0		
					04/10/97	13:52	04/22/97	14:45	0.0		
					04/22/97	14:45	05/05/97	16:38	3500.0		
					05/05/97	16:38	05/08/97	14:45	0.0		
					05/08/97	14:45	05/12/97	13:12	3500.0		
					05/12/97	13:12	08/06/97	09:15	6125.0		
					08/06/97	09:15	08/07/97	09:50	3500.0		
					08/07/97	09:50	10/15/97	08:17	6125.0		
					10/15/97	08:17	10/17/97	14:28	3500.0		
					10/17/97	14:28	12/29/97	22:25	6125.0		
					12/29/97	22:25	12/31/97	15:22	3500.0		
					12/31/97	15:22	12/31/97	23:59	6125.0	5396.9	SXXXXX

Total Discharge Volume (cuft): 2.628E+09

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6.2.8 296-A-41 Release Calculations

EAST TANK FARMS RELEASE CALCULATIONS

296-A-41: 241-AP Tank Farm Annuli Stack (E015)

Particulate Correction Factor: 0.80
 AgZ Correction Factor: N/A

Total Alpha & Beta Releases

Sample Number	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Alpha Conc. (uCi/mL)	Beta Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Alpha Release (Ci)	Beta Release (Ci)
S209195	01/01/97	00:00	01/07/97	08:43	152.7		1.2E-16	1.5E-15	8454.0	7.748E+07		4.1E-09
S210550	01/07/97	08:44	01/21/97	10:55	338.2	338.2	1.0E-16	3.5E-16	8454.0	1.715E+08		2.1E-09
S211839	01/21/97	10:56	02/04/97	09:31	334.6	334.6	1.8E-16	9.0E-16	8454.0	1.697E+08		5.4E-09
S213240	02/04/97	09:33	02/18/97	13:17	339.7	339.7	3.6E-16	5.0E-15	6263.1	1.277E+08		2.3E-08
S214826	02/18/97	13:18	03/04/97	08:43	331.4	331.4	1.8E-17	1.0E-15	8454.0	1.681E+08		6.0E-09
S216171	03/04/97	08:44	03/18/97	15:02	342.3	342.3	3.9E-16	1.7E-15	8454.0	1.738E+08		1.0E-08
SXXXXX	03/18/97	15:02	12/31/97	23:59	6921.0		3.9E-16	1.7E-15	8416.5	3.495E+09		2.1E-07
Sum:					8760	1696			Total Releases:	4.383E+09	0.000E+00	2.610E-07
									ERS Releases:	4.4E+09	ND	2.6E-07
									Percent Difference:	-0.4%	0.0%	0.4%

WEIGHTED STACK FLOW RATES

296-A-41: 241-AP Tank Farm Annuli Stack (E015)

Sample Number	Sampling Periods				Stack Operating Data				Operating Flow Rate (cfm)	Weighted Stack Flow Rate (cfm)	Sample Number
	ON Date	Time	OFF Date	Time	ON Date	Time	OFF Date	Time			
S209195	01/01/97	00:00	01/07/97	08:43	01/01/97	00:00	01/07/97	08:44	8454.0	8454.0	S209195
S210550	01/07/97	08:44	01/21/97	10:56	01/07/97	08:44	01/21/97	10:56	8454.0	8454.0	S210550
S211839	01/21/97	10:56	02/04/97	09:31	01/21/97	10:56	02/04/97	09:33	8454.0	8454.0	S211839
S213240	02/04/97	09:33	02/18/97	13:17	02/04/97	09:33	02/10/97	09:53	8454.0		
					02/10/97	09:53	02/14/97	01:56	0.0		
					02/14/97	01:56	02/18/97	13:18	8454.0	6263.1	S213240
S214826	02/18/97	13:18	03/04/97	08:43	02/18/97	13:18	03/04/97	08:44	8454.0	8454.0	S214826
S216171	03/04/97	08:44	03/18/97	15:02	03/04/97	08:44	03/18/97	15:02	8454.0	8454.0	S216171
SXXXXX	03/18/97	15:02	12/31/97	23:59	03/18/97	15:02	08/19/97	21:57	8454.0		
					08/19/97	21:57	08/20/97	08:41	0.0		
					08/20/97	08:41	11/06/97	07:26	8454.0		
					11/06/97	07:26	11/06/97	10:21	0.0		
					11/06/97	10:21	12/09/97	07:40	8454.0		
					12/09/97	07:40	12/10/97	00:44	0.0		
					12/10/97	00:44	12/31/97	23:59	8454.0	8416.5	SXXXXX

Total Discharge Volume (cuft): 4.383E+09

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6.2.9 296-S-15 Release Calculations

WEST TANK FARMS RELEASE CALCULATIONS

296-S-15: 214-SX Tank Farm Stack (W111)

Particulate Correction Factor: 0.84
 AgZ Correction Factor: N/A

Total Alpha & Beta Releases

Sample Number	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Alpha Conc. (uCi/mL)	Beta Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Alpha Release (Ci)	Beta Release (Ci)
S205480	01/01/97	00:00	01/02/97	09:37	33.6		1.3E-16	7.2E-15	3689.0	7.441E+06		1.8E-09
S205512	01/02/97	09:38	01/08/97	10:34	144.9	144.9	5.8E-15	4.2E-15	3689.0	3.208E+07	6.3E-09	4.5E-09
S205544	01/08/97	10:36	01/22/97	11:15	336.7	333.0	-1.2E-16	4.0E-15	3651.6	7.375E+07		9.9E-09
S205576	01/22/97	11:15	02/05/97	09:43	334.5	334.5	1.1E-16	3.6E-14	3689.0	7.403E+07		9.0E-08
S209768	02/05/97	09:44	02/19/97	13:42	340.0	339.9	-7.4E-17	3.1E-15	3689.0	7.525E+07		7.9E-09
S209796	02/19/97	13:44	03/05/97	13:25	335.7	335.7	1.5E-16	2.8E-15	3689.0	7.430E+07		6.5E-09
S212517	03/05/97	13:26	03/19/97	13:14	335.8	335.8	1.4E-16	1.2E-15	3689.0	7.433E+07		3.0E-09
S212546	03/19/97	13:15	04/02/97	09:43	332.5	332.5	1.1E-15	9.9E-15	3689.0	7.359E+07	2.7E-09	2.5E-08
S212575	04/02/97	09:44	04/16/97	09:25	335.7	335.7	4.0E-16	5.3E-15	3689.0	7.430E+07		1.3E-08
S212604	04/16/97	09:26	04/30/97	10:30	337.1	336.2	1.0E-15	4.8E-15	3689.0	7.461E+07		1.2E-08
S218318	04/30/97	10:31	05/14/97	06:48	332.3	332.3	4.6E-15	1.6E-14	620.5	1.039E+07		5.6E-09
S218347	05/14/97	06:48	05/28/97	08:23	337.6	337.6	4.5E-16	2.8E-14	3123.2	6.326E+07		6.0E-08
S222341	05/28/97	08:24	06/11/97	09:16	336.9	336.4	7.2E-16	2.1E-15	3689.0	7.456E+07		5.3E-09
S222340	06/11/97	09:16	06/25/97	07:49	334.6	334.6	6.2E-16	3.9E-15	3689.0	7.405E+07		9.7E-09
S222399	06/25/97	07:50	07/09/97	07:55	336.1	328.5	-5.8E-17	2.4E-15	3614.4	7.288E+07		5.9E-09
S222428	07/09/97	07:56	07/23/97	08:37	336.7	336.7	-8.7E-17	5.8E-16	3689.0	7.452E+07		
S227592	07/23/97	08:39	08/06/97	08:27	335.8	331.2	1.9E-16	1.5E-15	3642.7	7.339E+07		3.7E-09
S227621	08/06/97	08:28	08/20/97	08:10	335.7	335.7	2.1E-15	3.9E-15	2607.8	5.253E+07		6.9E-09
S227650	08/20/97	08:12	09/03/97	13:28	341.3	215.8	1.4E-15	2.1E-14	2335.0	4.781E+07		3.4E-08
S227679	09/03/97	13:30	09/17/97	09:45	331.3	325.2	7.7E-16	1.3E-14	3620.3	7.195E+07		3.2E-08
S234461	09/17/97	09:46	10/01/97	09:07	336.4	336.2	6.2E-16	1.7E-15	3689.0	7.445E+07		4.3E-09
S234490	10/01/97	09:09	10/15/97	09:10	336.0	331.4	6.2E-16	2.0E-15	3637.2	7.333E+07		4.9E-09
S236791	10/15/97	09:11	10/29/97	09:45	336.6	336.6	2.3E-16	1.3E-15	3689.0	7.450E+07		3.3E-09
S236820	10/29/97	09:45	11/12/97	09:27	335.7	335.5	6.0E-16	4.7E-15	3674.0	7.400E+07		1.2E-08
S236849	11/12/97	09:28	11/26/97	08:57	335.5	335.5	1.6E-16	4.0E-15	3689.0	7.428E+07		1.0E-08
S240628	11/26/97	08:58	12/10/97	09:07	336.2	336.2	5.5E-16	8.2E-15	3689.0	7.440E+07		2.1E-08
S240657	12/10/97	09:14	12/23/97	09:13	312.0	259.6	-1.1E-16	1.5E-14	3065.9	5.739E+07		2.9E-08
SXXXXX	12/23/97	09:13	12/31/97	23:59	206.8		-1.1E-16	1.5E-14	3689.0	4.577E+07		2.3E-08
Sum:					8759	8313			Total Releases:	1.797E+09	9.002E-09	4.426E-07
									ERS Releases:	1.8E+09	9.0E-09	4.4E-07
									Percent Difference:	-0.2%	0.0%	0.6%

WEIGHTED STACK FLOW RATES

296-S-15: 214-SX Tank Farm Stack (W111)

Sample Number	Sampling Periods				Stack Operating Data				Operating Flow Rate (cfm)	Weighted Stack Flow Rate (cfm)	Sample Number
	ON Date	Time	OFF Date	Time	ON Date	Time	OFF Date	Time			
S205480	01/01/97	00:00	01/02/97	09:38	01/01/97	00:00	01/02/97	09:38	3689.0	3689.0	S205480
S205512	01/02/97	09:38	01/08/97	10:34	01/02/97	09:38	01/08/97	10:34	3689.0	3689.0	S205512
S205544	01/08/97	10:36	01/22/97	11:15	01/08/97	10:38	01/17/97	13:38	3689.0		
					01/17/97	13:38	01/17/97	17:03	0.0		
					01/17/97	17:03	01/22/97	11:15	3689.0	3651.6	S205544
S205576	01/22/97	11:15	02/05/97	09:43	01/22/97	11:15	02/05/97	09:44	3689.0	3689.0	S205576
S209768	02/05/97	09:44	02/19/97	13:42	02/05/97	09:44	02/19/97	13:44	3689.0	3689.0	S209768
S209796	02/19/97	13:44	03/05/97	13:25	02/19/97	13:44	03/05/97	13:26	3689.0	3689.0	S209796
S212517	03/05/97	13:26	03/19/97	13:14	03/05/97	13:26	03/19/97	13:15	3689.0	3689.0	S212517
S212546	03/19/97	13:15	04/02/97	09:43	03/19/97	13:15	04/02/97	09:44	3689.0	3689.0	S212546
S212575	04/02/97	09:44	04/16/97	09:25	04/02/97	09:44	04/16/97	09:26	3689.0	3689.0	S212575
S212604	04/16/97	09:26	04/30/97	10:30	04/16/97	09:26	04/30/97	10:31	3689.0	3689.0	S212604
S218318	04/30/97	10:31	05/14/97	06:48	04/30/97	10:31	05/02/97	09:24	3689.0		
					05/02/97	09:24	05/14/97	06:48	0.0	520.5	S218318
S218347	05/14/97	06:48	05/28/97	08:23	05/14/97	06:48	05/16/97	10:35	0.0		
					05/16/97	10:35	05/28/97	08:24	3689.0	3123.2	S218347
S222341	05/28/97	08:24	06/11/97	09:16	05/28/97	08:24	06/11/97	09:16	3689.0	3689.0	S222341
S222370	06/11/97	09:16	06/25/97	07:49	06/11/97	09:16	06/25/97	07:50	3689.0	3689.0	S222370
S222399	06/25/97	07:50	07/09/97	07:55	06/25/97	07:50	06/25/97	08:07	3689.0		
					06/25/97	08:07	06/25/97	14:55	0.0		
					06/25/97	14:55	07/09/97	07:56	3689.0	3614.4	S222399
S222428	07/09/97	07:56	07/23/97	08:37	07/09/97	07:56	07/23/97	08:39	3689.0	3689.0	S222428
S227592	07/23/97	08:39	08/06/97	08:27	07/23/97	08:39	08/05/97	11:09	3689.0		
					08/05/97	11:09	08/05/97	15:22	0.0		
					08/05/97	15:22	08/06/97	08:28	3689.0	3642.7	S227592
S227621	08/06/97	08:28	08/20/97	08:10	08/06/97	08:28	08/10/97	00:50	3689.0		
					08/10/97	00:50	08/11/97	14:04	0.0		
					08/11/97	14:04	08/12/97	05:00	3689.0		
					08/12/97	05:00	08/14/97	10:45	0.0		
					08/14/97	10:45	08/20/97	00:47	3689.0		
					08/20/97	00:47	08/20/97	08:12	0.0	2607.8	S227621
S227650	08/20/97	08:12	09/03/97	13:28	08/20/97	08:12	08/25/97	13:28	0.0		
					08/25/97	13:28	09/03/97	13:30	3689.0	2335.0	S227650
S227679	09/03/97	13:30	09/17/97	08:45	09/03/97	13:30	09/13/97	04:21	3689.0		
					09/13/97	04:21	09/13/97	10:31	0.0		
					09/13/97	10:31	09/17/97	08:46	3689.0	3620.3	S227679
S234461	09/17/97	08:46	10/01/97	09:07	09/17/97	08:46	10/01/97	09:09	3689.0	3689.0	S234461
S234490	10/01/97	09:09	10/15/97	09:10	10/01/97	09:09	10/08/97	05:46	3689.0		
					10/08/97	05:46	10/08/97	10:29	0.0		
					10/08/97	10:29	10/15/97	09:11	3689.0	3637.2	S234490
S236791	10/15/97	09:11	10/29/97	09:45	10/15/97	09:11	10/29/97	09:45	3689.0	3689.0	S236791
S236820	10/29/97	09:45	11/12/97	09:27	10/29/97	09:45	11/06/97	09:18	3689.0		
					11/06/97	09:18	11/06/97	10:40	0.0		
					11/06/97	10:40	11/12/97	09:28	3689.0	3674.0	S236820
S236849	11/12/97	09:28	11/26/97	08:57	11/12/97	09:28	11/26/97	08:58	3689.0	3689.0	S236849
S240628	11/26/97	08:58	12/10/97	09:07	11/26/97	08:58	12/10/97	09:14	3689.0	3689.0	S240628
S240657	12/10/97	09:14	12/23/97	09:13	12/10/97	09:14	12/17/97	09:00	3689.0		
					12/17/97	09:00	12/19/97	13:42	0.0		
					12/19/97	13:42	12/23/97	09:13	3689.0	3065.9	S240657
SXXXXX	12/23/97	09:13	12/31/97	23:59	12/23/97	09:13	12/31/97	23:59	3689.0	3689.0	SXXXXX

Total Discharge Volume (cuft): 1.797E+09

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6.2.10 296-S-22 Release Calculations

WEST TANK FARMS RELEASE CALCULATIONS

296-S-22: 244-S Salt Well Receiver Tank & Annulus Stack (W880)

Particulate Correction Factor: 0.72
 AgZ Correction Factor: N/A

Total Alpha & Beta Releases

Sample Number	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Alpha Conc. (uCi/mL)	Beta Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Alpha Release (Ci)	Beta Release (Ci)
S205495	01/01/97	00:00	01/02/97	08:36	32.6		1.3E-16	2.1E-15	147.0	2.875E+05		2.4E-11
S205527	01/02/97	08:37	01/08/97	09:43	145.1	145.1	3.7E-16	3.9E-17	147.0	1.280E+06		2.0E-12
S205559	01/08/97	09:44	01/22/97	10:25	336.7	336.7	9.7E-16	5.2E-15	147.0	2.970E+06	1.1E-10	6.1E-10
S205591	01/22/97	10:27	02/05/97	09:46	335.3	335.3	6.3E-17	3.8E-15	93.2	1.875E+06		2.8E-10
S209779	02/05/97	09:48	02/19/97	09:38	335.8	335.8	1.3E-15	1.5E-14	114.0	2.297E+06	1.2E-10	1.4E-09
S209807	02/19/97	09:39	03/05/97	10:42	337.1	337.1	2.9E-16	2.6E-15	147.0	2.973E+06		3.0E-10
S212528	03/05/97	10:44	03/19/97	09:58	335.2	335.2	6.5E-17	7.4E-15	147.0	2.957E+06		8.6E-10
S212557	03/19/97	09:59	04/02/97	08:59	335.0	335.0	-3.1E-17	7.5E-16	147.0	2.955E+06		8.7E-11
S212586	04/02/97	09:01	04/16/97	09:02	336.0	336.0	4.3E-16	2.2E-15	147.0	2.984E+06		2.6E-10
S212615	04/16/97	09:03	04/30/97	09:47	336.7	336.7	2.1E-16	5.4E-16	132.3	2.673E+06		5.7E-11
S218329	04/30/97	09:49	05/14/97	07:20	333.5	333.5	5.4E-16	4.3E-15	147.0	2.942E+06	6.2E-11	5.0E-10
S218358	05/14/97	07:22	05/28/97	07:48	336.4	336.4	5.8E-16	1.7E-15	147.0	2.967E+06	6.8E-11	2.0E-10
S222352	05/28/97	07:50	06/11/97	09:09	337.3	337.3	2.0E-16	1.1E-15	147.0	2.975E+06		1.3E-10
S222381	06/11/97	09:11	06/25/97	07:46	334.6	334.6	3.1E-16	3.4E-15	146.5	2.941E+06		3.9E-10
S222410	06/25/97	07:48	07/09/97	07:38	335.8	335.8	5.9E-16	1.1E-15	147.0	2.962E+06	6.9E-11	1.3E-10
S222439	07/09/97	07:39	07/23/97	08:25	336.8	336.8	3.3E-16	3.1E-15	147.0	2.970E+06		3.6E-10
S227603	07/23/97	08:27	08/06/97	08:36	336.2	336.2	9.9E-17	1.8E-15	136.8	2.759E+06		2.0E-10
S227632	08/06/97	08:38	08/20/97	08:30	335.9	335.9	6.0E-16	4.4E-15	112.6	2.289E+06		3.9E-10
S227661	08/20/97	08:31	09/03/97	08:58	336.5	336.5	5.0E-16	1.5E-15	132.9	2.693E+06		1.6E-10
S227690	09/03/97	08:59	09/17/97	08:22	335.4	335.4	-5.4E-17	2.8E-15	147.0	2.958E+06		3.3E-10
S234472	09/17/97	08:24	10/01/97	08:38	336.2	336.2	4.8E-16	2.1E-15	147.0	2.966E+06		2.4E-10
S234501	10/01/97	08:40	10/15/97	08:41	336.0	336.0	9.1E-17	9.1E-16	147.0	2.964E+06		1.1E-10
S236802	10/15/97	08:43	10/29/97	10:37	337.9	337.9	3.6E-16	2.0E-15	147.0	2.980E+06		2.3E-10
S236831	10/29/97	10:37	11/12/97	09:07	334.5	334.5	3.4E-16	2.2E-15	147.0	2.950E+06		2.6E-10
S236860	11/12/97	09:09	11/26/97	08:36	335.5	335.5	2.5E-16	1.0E-14	145.5	2.928E+06		1.2E-09
S240639	11/26/97	08:38	12/10/97	08:32	335.9	335.9	7.6E-16	4.6E-15	147.0	2.963E+06	8.9E-11	5.4E-10
S240668	12/10/97	08:35	12/23/97	08:53	312.3	312.3	2.6E-16	1.9E-15	147.0	2.754E+06		2.1E-10
SXXXXX	12/23/97	08:53	12/31/97	23:59	207.1		2.6E-16	1.9E-15	147.0	1.827E+06		1.4E-10
Sum:					8759	8520	Total Releases:		7.399E+07	5.182E-10	9.485E-09	
							ERS Releases:		7.4E+07	5.2E-10	9.5E-09	
							Percent Difference:		-0.0%	-0.3%	-0.2%	

WEST TANK FARMS RELEASE CALCULATIONS

296-S-22: 244-S Salt Well Reciever Tank & Annulus Stack (W880)

Particulate Correction Factor: 0.72
 AgZ Correction Factor: N/A

Cs-137 Releases

EDP Code	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Cs-137 Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Cs-137 Release (Ci)
X880	01/01/97	00:00	03/19/97	09:58	1858.0		1.4E-16	131.3	1.464E+07	
X880	03/19/97	09:59	06/25/97	07:46	2349.8	2349.6	5.7E-18	144.8	2.042E+07	
X880	06/25/97	07:48	09/17/97	08:22	2016.6	2016.5	2.2E-16	137.2	1.660E+07	1.4E-10
X880	09/17/97	08:24	12/23/97	08:53	2328.5	2328.3	4.1E-16	146.8	2.051E+07	3.3E-10
X880	12/23/97	08:53	12/31/97	23:59	207.1		4.1E-16	147.0	1.827E+06	2.9E-11
Sum:					8759.9	6694.4	Total Releases:		7.399E+07	5.04E-10
ERS Release:										5.0E-10
Percent Difference:										0.8%

Pu-239/240 Releases

EDP Code	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Pu-239/240 Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Pu-239/240 Release (Ci)	
X880	01/01/97	00:00	03/19/97	09:58	1858.0		2.2E-17	131.3	1.464E+07	1.3E-11	
X880	03/19/97	09:59	06/25/97	07:46	2349.8	2349.6	4.6E-18	144.8	2.042E+07		
X880	06/25/97	07:48	09/17/97	08:22	2016.6	2016.5	1.7E-17	137.2	1.660E+07	1.1E-11	
X880	09/17/97	08:24	12/23/97	08:53	2328.5	2328.3	2.7E-17	146.8	2.051E+07	2.2E-11	
X880	12/23/97	08:53	12/31/97	23:59	207.1		2.7E-17	147.0	1.827E+06	1.9E-12	
Sum:					8759.9	6694.4	Total Releases:			7.399E+07	4.75E-11
ERS Release:										4.7E-11	
Percent Difference:										1.0%	

WEIGHTED STACK FLOW RATES

296-S-22: 244-S Salt Well Receiver Tank & Annulus Stack (W880)

Sample Number	Sampling Periods				Stack Operating Data				Operating Flow Rate (cfm)	Weighted Stack Flow Rate (cfm)	Sample Number
	ON Date	Time	OFF Date	Time	ON Date	Time	OFF Date	Time			
S205495	01/01/97	09:00	01/02/97	08:36	01/01/97	09:00	01/02/97	08:37	147.0	147.0	S205495
S205527	01/02/97	08:37	01/08/97	09:43	01/02/97	08:37	01/08/97	09:44	147.0	147.0	S205527
S205559	01/08/97	09:44	01/22/97	10:25	01/08/97	09:44	01/22/97	10:27	147.0	147.0	S205559
S205591	01/22/97	10:27	02/05/97	09:46	01/22/97	10:27	01/23/97	08:41	147.0		
					01/23/97	08:41	01/23/97	20:55	0.0		
					01/23/97	20:55	01/31/97	06:00	147.0		
					01/31/97	06:00	01/31/97	09:09	0.0		
					01/31/97	09:09	01/31/97	22:33	147.0		
					01/31/97	22:33	02/05/97	09:48	0.0		
S209779	02/05/97	09:48	02/19/97	09:38	02/05/97	09:48	02/08/97	13:17	0.0		
					02/08/97	13:17	02/19/97	09:39	147.0	114.0	S209779
S209807	02/19/97	09:39	03/05/97	10:42	02/19/97	09:39	03/05/97	10:44	147.0	147.0	S209807
S212528	03/05/97	10:44	03/19/97	09:58	03/05/97	10:44	03/19/97	09:59	147.0	147.0	S212528
S212557	03/19/97	09:59	04/02/97	08:59	03/19/97	09:59	04/02/97	09:01	147.0	147.0	S212557
S212586	04/02/97	09:01	04/16/97	09:02	04/02/97	09:01	04/16/97	09:03	147.0	147.0	S212586
S212615	04/16/97	09:03	04/30/97	09:47	04/16/97	09:03	04/23/97	00:05	147.0		
					04/23/97	00:05	04/24/97	09:39	0.0		
					04/24/97	09:39	04/30/97	09:49	147.0	132.3	S212615
S218329	04/30/97	09:49	05/14/97	07:20	04/30/97	09:49	05/14/97	07:22	147.0	147.0	S218329
S218358	05/14/97	07:22	05/28/97	07:48	05/14/97	07:22	05/28/97	07:50	147.0	147.0	S218358
S222352	05/28/97	07:50	06/11/97	08:09	05/28/97	07:50	06/11/97	09:11	147.0	147.0	S222352
S222381	06/11/97	09:11	06/25/97	07:46	06/11/97	09:11	06/23/97	10:16	147.0		
					06/23/97	10:16	06/23/97	11:19	0.0		
					06/23/97	11:19	06/25/97	07:48	147.0	146.5	S222381
S222410	06/25/97	07:48	07/09/97	07:38	06/25/97	07:48	07/09/97	07:39	147.0	147.0	S222410
S222439	07/09/97	07:39	07/23/97	08:25	07/09/97	07:39	07/23/97	08:27	147.0	147.0	S222439
S227603	07/23/97	08:27	08/06/97	08:36	07/23/97	08:27	08/04/97	10:55	147.0		
					08/04/97	10:55	08/04/97	12:40	0.0		
					08/04/97	12:40	08/05/97	11:09	147.0		
S227632	08/05/97	11:09	08/20/97	08:30	08/05/97	11:09	08/06/97	08:38	0.0	136.8	S227603
S227661	08/20/97	08:31	09/03/97	08:58	08/20/97	08:31	08/20/97	08:31		112.6	S227632
					08/20/97	08:31	08/21/97	16:54	0.0		
					08/21/97	16:54	09/03/97	08:59	147.0	132.9	S227661
S227690	09/03/97	08:59	09/17/97	08:22	09/03/97	08:59	09/17/97	08:24	147.0	147.0	S227690
S234472	09/17/97	08:24	10/01/97	08:38	09/17/97	08:24	10/01/97	08:40	147.0	147.0	S234472
S234501	10/01/97	08:40	10/15/97	08:41	10/01/97	08:40	10/15/97	08:43	147.0	147.0	S234501
S236802	10/15/97	08:43	10/29/97	10:37	10/15/97	08:43	10/29/97	10:37	147.0	147.0	S236802
S236831	10/29/97	10:37	11/12/97	09:07	10/29/97	10:37	11/12/97	09:09	147.0	147.0	S236831
S236860	11/12/97	09:09	11/26/97	08:36	11/12/97	09:09	11/19/97	18:05	147.0		
					11/19/97	18:05	11/19/97	21:30	0.0		
					11/19/97	21:30	11/26/97	08:38	147.0	145.5	S236860
S240639	11/26/97	08:38	12/10/97	08:32	11/26/97	08:38	12/10/97	08:35	147.0	147.0	S240639
S240668	12/10/97	08:35	12/23/97	08:53	12/10/97	08:35	12/23/97	08:53	147.0	147.0	S240668
SXXXXX	12/23/97	08:53	12/31/97	23:59	12/23/97	08:53	12/31/97	23:59	147.0	147.0	SXXXXX

Total Discharge Volume (cuft): 7.400E+07

6.2.11 296-T-18 Release Calculations

WEST TANK FARMS RELEASE CALCULATIONS

296-T-18: 244-TX Salt Well Receiver Tank & Annulus Stack (W882)

Particulate Correction Factor: 0.70
 AgZ Correction Factor: N/A

Total Alpha & Beta Releases

Sample Number	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Alpha Conc. (uCi/mL)	Beta Conc. (uCi/mL)	Stack Flow Rate	Discharge Volume (cuft)	Alpha Release (Ci)	Beta Release (Ci)
S205529	01/01/97	00:00	01/08/97	09:03	177.1		1.9E-15	3.4E-15	219.9	2.336E+08	1.8E-10	3.2E-10
S205561	01/08/97	09:05	01/22/97	09:58	336.9	336.9	1.6E-15	6.2E-15	240.5	4.861E+06	3.1E-10	1.2E-09
S205593	01/22/97	10:00	02/05/97	10:03	336.1	336.1	4.9E-16	6.1E-15	31.9	6.432E+05		1.6E-10
S209781	02/05/97	10:04	02/11/97	13:50	147.8	147.8	1.6E-15	1.0E-14	161.1	1.428E+08		5.8E-10
S213862	02/11/97	13:50	02/20/97	09:00	211.2	211.2	7.7E-16	1.7E-15	250.0	3.168E+06		2.2E-10
S209809	02/20/97	09:00	03/05/97	10:18	313.3	313.3	1.8E-16	2.3E-16	248.7	4.675E+06		
S212530	03/05/97	10:20	03/19/97	09:25	335.1	335.1	4.7E-16	8.6E-16	250.0	5.026E+06	9.6E-11	1.7E-10
S212559	03/19/97	09:26	04/02/97	08:08	334.7	334.7	5.2E-16	1.4E-15	250.0	5.021E+06		2.8E-10
S212688	04/02/97	08:10	04/16/97	08:40	336.5	336.5	4.0E-16	2.5E-15	250.0	5.048E+06		5.1E-10
S212617	04/16/97	08:41	04/30/97	08:57	336.3	336.3	-4.2E-17	8.9E-16	250.0	5.044E+06		1.8E-10
S218331	04/30/97	08:58	05/14/97	08:06	335.1	335.1	4.0E-16	9.8E-16	250.0	5.027E+06		2.0E-10
S218360	05/14/97	08:08	05/28/97	09:22	337.2	337.2	1.1E-15	2.0E-15	250.0	5.059E+06	2.3E-10	4.1E-10
S222354	05/28/97	09:23	06/11/97	08:25	335.0	335.0	5.9E-16	1.1E-15	247.5	4.975E+06		2.2E-10
S222363	06/11/97	08:27	06/25/97	08:41	336.2	336.2	5.0E-16	1.4E-15	246.0	4.953E+06		2.8E-10
S222412	06/25/97	08:42	07/09/97	09:07	336.4	336.4	6.2E-16	6.8E-15	250.0	5.046E+06		1.3E-09
S222441	07/09/97	09:09	07/23/97	09:09	336.0	336.0	-6.8E-17	5.8E-15	247.3	4.986E+06		1.2E-09
S227605	07/23/97	09:11	08/06/97	09:14	336.1	336.1	1.4E-15	4.3E-15	248.6	5.013E+06	2.8E-10	8.7E-10
S227663	08/06/97	09:16	08/20/97	09:14	336.0	336.0	5.1E-16	8.3E-16	250.0	5.040E+06		1.7E-10
S227634	08/20/97	09:20	09/03/97	08:36	335.3	335.3	1.2E-15	2.7E-15	250.0	5.029E+06	2.4E-10	5.5E-10
S227692	09/03/97	08:38	09/17/97	09:47	337.2	337.2	8.9E-16	2.4E-15	250.0	5.057E+06	1.8E-10	4.9E-10
S234474	09/17/97	09:48	10/01/97	09:47	335.0	335.0	5.9E-16	3.7E-15	248.7	5.014E+06	1.2E-10	7.5E-10
S234503	10/01/97	09:49	10/15/97	09:30	335.7	335.7	6.1E-16	1.6E-14	250.0	5.035E+06	1.2E-10	3.3E-09
S238904	10/15/97	09:32	10/29/97	10:18	336.8	336.8	4.9E-16	3.4E-15	250.0	5.052E+06		6.9E-10
S236833	10/29/97	10:19	11/12/97	12:39	338.3	338.3	5.3E-16	2.8E-15	250.0	5.075E+06		5.7E-10
S236862	11/12/97	12:40	11/26/97	09:31	332.9	332.9	3.7E-16	3.4E-15	250.0	4.993E+06		6.9E-10
S240641	11/26/97	09:32	12/10/97	09:39	336.1	336.1	5.1E-16	4.8E-15	236.2	4.763E+06		9.3E-10
S240670	12/10/97	09:39	12/23/97	13:21	315.7	315.7	5.5E-16	3.5E-15	248.8	4.713E+06		6.7E-10
SXXXXX	12/23/97	13:21	12/31/97	23:59	202.6		5.5E-16	3.5E-15	250.0	3.040E+08		4.3E-10
Sum:					8759	8380			Total Releases:	1.251E+08	1.769E-09	1.735E-08
									ERS Releases:	1.3E+08	1.8E-09	1.7E-08
									Percent Difference:	-3.9%	-1.8%	2.0%

WEST TANK FARMS RELEASE CALCULATIONS

296-T-18: 244-TX Salt Well Receiver Tank & Annulus Stack (W882)

Particulate Correction Factor: 0.70
 AgZ Correction Factor: N/A

Cs-137 Releases

EDP Code	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Cs-137 Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Cs-137 Release (Ci)	
X882	01/01/97	00:00	03/19/97	09:25	1857.4		1.6E-15	198.7	2.214E+07	1.4E-09	
X882	03/19/97	09:26	06/25/97	08:41	2351.3	2351.1	3.8E-16	249.1	3.514E+07	5.4E-10	
X882	06/25/97	08:42	09/17/97	09:47	2017.1	2016.9	2.4E-15	249.3	3.017E+07	2.9E-09	
X882	09/17/97	09:48	12/23/97	13:21	2331.6	2331.4	1.5E-15	247.7	3.465E+07	2.1E-09	
X882	12/23/97	13:21	12/31/97	23:59	202.6		1.5E-15	250.0	3.040E+06	1.8E-10	
Sum:					8759.9	6699.4	Total Releases:			1.251E+08	7.19E-08
ERS Release:										7.2E-09	
Percent Difference:										-0.1%	

Am-241 Releases

EDP Code	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	ERS Time (hr)	Am-241 Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Am-241 Release (Ci)
X882	01/01/97	00:00	03/19/97	09:25	1857.4		7.8E-17	198.7	2.214E+07	7.0E-11
X882	03/19/97	09:26	06/25/97	08:41	2351.3	2351.1	1.4E-16	249.1	3.514E+07	2.0E-10
X882	06/25/97	08:42	09/17/97	09:47	2017.1	2016.9	1.3E-16	249.3	3.017E+07	1.6E-10
X882	09/17/97	09:48	12/23/97	13:21	2331.6	2331.4	5.1E-17	247.7	3.465E+07	7.1E-11
X882	12/23/97	13:21	12/31/97	23:59	202.6		5.1E-17	250.0	3.040E+06	6.3E-12
Sum:					8759.9	6699.4	Total Releases:		1.251E+08	5.05E-10
ERS Release:										5.1E-10
Percent Difference:										-0.9%

WEIGHTED STACK FLOW RATES

296-T-18: 244-TX Salt Well Receiver Tank & Annulus Stack (W882)

Sample Number	Sampling Periods				Stack Operating Data				Operating Flow Rate (cfm)	Weighted Stack Flow Rate (cfm)	Sample Number
	ON Date	Time	OFF Date	Time	ON Date	Time	OFF Date	Time			
S205529	01/01/97	00:00	01/08/97	09:03	01/01/97	00:00	01/02/97	17:02	250.0		
					01/02/97	17:02	01/03/97	14:23	0.0		
					01/03/97	14:23	01/08/97	09:05	250.0	219.9	S205529
S205561	01/08/97	09:05	01/22/97	09:58	01/08/97	09:05	01/14/97	06:58	250.0		
					01/14/97	06:58	01/14/97	19:45	0.0		
					01/14/97	19:45	01/22/97	10:00	250.0	240.5	S205561
S205593	01/22/97	10:00	02/05/97	10:03	01/22/97	10:00	01/24/97	04:54	250.0		
					01/24/97	04:54	02/05/97	10:04	0.0	31.9	S205593
S209781	02/05/97	10:04	02/11/97	13:50	02/05/97	10:04	02/07/97	14:38	0.0		
					02/07/97	14:38	02/11/97	13:50	250.0	161.1	S209781
S213862	02/11/97	13:50	02/20/97	09:00	02/11/97	13:50	02/20/97	09:00	250.0	250.0	S213862
S209809	02/20/97	09:00	03/05/97	10:18	02/20/97	09:00	02/25/97	09:38	250.0		
					02/25/97	09:38	02/25/97	11:17	0.0		
					02/25/97	11:17	03/05/97	10:20	250.0	248.7	S209809
S212530	03/05/97	10:20	03/19/97	09:25	03/05/97	10:20	03/19/97	09:26	250.0	250.0	S212530
S212559	03/19/97	09:26	04/02/97	08:08	03/19/97	09:26	04/02/97	08:10	250.0	250.0	S212559
S212588	04/02/97	08:10	04/16/97	08:40	04/02/97	08:10	04/16/97	08:41	250.0	250.0	S212588
S212617	04/16/97	08:41	04/30/97	08:57	04/16/97	08:41	04/30/97	08:58	250.0	250.0	S212617
S218331	04/30/97	08:58	05/14/97	08:06	04/30/97	08:58	05/14/97	08:08	250.0	250.0	S218331
S218360	05/14/97	08:08	05/28/97	09:22	05/14/97	08:08	05/28/97	09:23	250.0	250.0	S218360
S222354	05/28/97	09:23	06/11/97	08:25	05/28/97	09:23	05/29/97	07:45	250.0		
					05/29/97	07:45	05/29/97	11:08	0.0		
					05/29/97	11:08	06/11/97	08:27	250.0	247.5	S222354
S222383	06/11/97	08:27	06/25/97	08:41	06/11/97	08:27	06/11/97	13:48	0.0		
					06/11/97	13:48	06/25/97	08:42	250.0	246.0	S222383
S222412	06/25/97	08:42	07/09/97	09:07	06/25/97	08:42	07/09/97	09:09	250.0	250.0	S222412
S222441	07/09/97	09:09	07/23/97	09:09	07/09/97	09:09	07/21/97	08:05	250.0		
					07/21/97	08:05	07/21/97	11:40	0.0		
					07/21/97	11:40	07/23/97	08:11	250.0	247.3	S222441
S227605	07/23/97	09:11	08/06/97	09:14	07/23/97	09:11	08/05/97	11:09	250.0		
					08/05/97	11:09	08/05/97	13:02	0.0		
					08/05/97	13:02	08/06/97	09:16	250.0	248.6	S227605
S227663	08/06/97	09:16	08/20/97	09:14	08/06/97	09:16	08/20/97	09:20	250.0	250.0	S227663
S227634	08/20/97	09:20	09/03/97	08:36	08/20/97	09:20	09/03/97	08:38	250.0	250.0	S227634
S227692	09/03/97	08:38	09/17/97	09:47	09/03/97	08:38	09/17/97	09:48	250.0	250.0	S227692
S234474	09/17/97	09:48	10/01/97	09:47	09/17/97	09:48	09/24/97	16:06	250.0		
					09/24/97	16:06	09/24/97	17:47	0.0		
					09/24/97	17:47	10/01/97	09:49	250.0	248.7	S234474
S234503	10/01/97	09:49	10/15/97	09:30	10/01/97	09:49	10/15/97	09:32	250.0	250.0	S234503
S236804	10/15/97	09:32	10/29/97	10:18	10/15/97	09:32	10/29/97	10:19	250.0	250.0	S236804
S236833	10/29/97	10:19	11/12/97	12:39	10/29/97	10:19	11/12/97	12:40	250.0	250.0	S236833
S236862	11/12/97	12:40	11/26/97	09:31	11/12/97	12:40	11/26/97	09:32	250.0	250.0	S236862
S240641	11/26/97	09:32	12/10/97	09:39	11/26/97	09:32	12/02/97	20:39	250.0		
					12/02/97	20:39	12/03/97	15:11	0.0		
					12/03/97	15:11	12/10/97	09:39	250.0	236.2	S240641
S240670	12/10/97	09:39	12/23/97	13:21	12/10/97	09:39	12/20/97	12:07	250.0		
					12/20/97	12:07	12/20/97	13:40	0.0		
					12/20/97	13:40	12/23/97	13:21	250.0	248.8	S240670
XXXXXX	12/23/97	13:21	12/31/97	23:59	12/23/97	13:21	12/31/97	23:59	250.0	250.0	XXXXXX

Total Discharge Volume (cuft): 1.251E+08

6.3 296-P-32 Release Calculations

EAST TANK FARMS RELEASE CALCULATIONS

296-P-32: 244-AR Vault Stack (E401)

Particulate Correction Factor: 0.73

AgZ Correction Factor: N/A

Total Alpha & Beta Releases

Sample Number	Date ON	Time ON	Date OFF	Time OFF	Calc. Time (hr)	Alpha Conc. (uCi/mL)	Beta Conc. (uCi/mL)	Stack Flow Rate (cfm)	Discharge Volume (cuft)	Alpha Release (Ci)	Beta Release (Ci)
XXXXXX	01/01/97	00:00	10/28/97	14:00	7214.0			0.0	0.000E+00		
XXXXXX	10/28/97	14:00	10/28/97	15:00	1.0	1.4E-14	1.1E-12	200.0	1.200E+04		5.1E-10
XXXXXX	10/28/97	15:00	11/21/97	09:20	570.3			0.0	0.000E+00		
XXXXXX	11/21/97	09:20	11/21/97	10:35	1.2	1.4E-14	1.1E-12	200.0	1.500E+04		6.4E-10
XXXXXX	11/21/97	10:35	12/02/97	13:15	266.7			0.0	0.000E+00		
XXXXXX	12/02/97	13:15	12/02/97	14:15	1.0	1.4E-14	1.1E-12	200.0	1.200E+04		5.1E-10
XXXXXX	12/02/97	14:15	12/08/97	18:00	147.8			0.0	0.000E+00		
XXXXXX	12/08/97	18:00	12/08/97	18:48	0.8	1.4E-14	1.1E-12	200.0	9.600E+03		4.1E-10
XXXXXX	12/08/97	18:48	12/31/97	23:59	557.2			0.0	0.000E+00		
Sum:					8760			Total Releases:	4.860E+04	0.000E+00	2.074E-09

6.4 RCF-1-EX Release Calculations

During 1997, the only part of BHI's Radiological Counting Facility that operated and potentially produced radioactive air emissions was exhauster RCF-1-EX at the H0-64-4230 trailer.

The trailer's hood exhauster operated at 75 cfm ($3.5 \text{ E-02 m}^3/\text{s}$) during 1997. The exhauster was assumed to have operated during all business hours in 1997, 40 hours per week for 52 weeks per year minus holidays. This equates to 2008 operating hours for a total discharge volume of 9.0 E+06 ft^3 (2.6 E+05 m^3).

$$(40 \text{ hr/wk})(52 \text{ wk/yr}) - (9 \text{ holidays/yr})(8 \text{ hr/holiday}) = 2008 \text{ hr/yr}$$

$$(2008 \text{ hr/yr})(60 \text{ min/hr}) = 120480 \text{ min/yr}$$

$$(120480 \text{ min/yr})(75 \text{ ft}^3/\text{min}) = 9.0 \text{ E+06 ft}^3/\text{yr}$$

Three air samples were collected at periodic confirmatory measurements for this emission unit. The average total alpha and total beta concentrations were calculated. The average concentrations were then multiplied by the discharge volume to estimate the emissions.

Table 6-1

RCF-1-EX Sample Results		
Sample Number	Total Alpha ($\mu\text{Ci/mL}$)	Total Beta ($\mu\text{Ci/mL}$)
S259339	ND	ND
S252986	1.8 E-15	5.3 E-15
S252987	ND	1.0 E-15
Average	1.8 E-15	3.2 E-15

Total alpha release:

$$(1.8 \text{ E-15 } \mu\text{Ci/mL})(9.0 \text{ E+06 ft}^3)(28320 \text{ mL/ft}^3)(1 \text{ E-06 Ci/}\mu\text{Ci}) = 4.6 \text{ E-10 Ci}$$

Total beta release:

$$(3.2 \text{ E-15 } \mu\text{Ci/mL})(9.0 \text{ E+06 ft}^3)(28320 \text{ mL/ft}^3)(1 \text{ E-06 Ci/}\mu\text{Ci}) = 8.2 \text{ E-10 Ci}$$

6.5 296-T-7 Weighted Stack Flow Rate Calculations

WEIGHTED STACK FLOW RATES

296-T-7 Stack (T154)

Sample Number	Sampling Periods				Stack Operating Data				Flow Rate (cfm)	Weighted Stack Flow Rate (cfm)	Sample Number
	ON Date	OFF Time	ON Date	OFF Time	ON Date	OFF Time	ON Date	OFF Time			
SXXXXXX	01/01/97	00:00	01/31/97	08:38	01/01/97	00:00	01/06/97	09:29	0	772	SXXXXXX
					01/06/97	09:29	01/06/97	15:10	12183		
					01/06/97	15:10	01/08/97	13:45	0		
					01/08/97	13:45	01/08/97	14:38	12183		
					01/08/97	14:38	01/09/97	08:30	0		
					01/09/97	08:30	01/09/97	14:20	12183		
					01/09/97	14:20	01/10/97	08:30	0		
					01/10/97	08:30	01/10/97	15:00	12183		
					01/10/97	15:00	01/13/97	09:37	0		
					01/13/97	09:37	01/13/97	15:33	12183		
					01/13/97	15:33	01/20/97	09:00	0		
					01/20/97	09:00	01/20/97	15:40	12183		
					01/20/97	15:40	01/23/97	08:35	0		
					01/23/97	08:35	01/23/97	14:00	12183		
					01/23/97	14:00	01/30/97	10:45	0		
					01/30/97	10:45	01/30/97	20:00	12183		
					01/30/97	20:00	01/31/97	08:38	0		
SXXXXXX	05/08/97	08:50	06/03/97	10:15	05/08/97	08:50	05/08/97	09:00	0	10530	SXXXXXX
					05/08/97	09:00	05/08/97	15:16	12183		
					05/08/97	15:16	05/07/97	10:20	0		
					05/07/97	10:20	05/07/97	15:24	12183		
					05/07/97	15:24	05/08/97	08:25	0		
					05/08/97	08:25	05/08/97	15:40	12183		
					05/08/97	15:40	05/09/97	22:35	0		
					05/09/97	22:35	05/15/97	21:50	12183		
					05/15/97	21:50	05/15/97	21:58	0		
					05/15/97	21:58	05/21/97	08:55	12183		
					05/21/97	08:55	05/22/97	09:00	0		
					05/22/97	09:00	06/03/97	10:15	12183		
SXXXXXX	08/05/97	09:57	12/31/97	23:59	08/05/97	09:57	08/14/97	10:28	12183	1383	SXXXXXX
					08/14/97	10:28	08/18/97	09:09	0		
					08/18/97	09:09	08/20/97	09:15	12183		
					08/20/97	09:15	09/16/97	15:15	0		
					09/16/97	15:15	09/16/97	19:00	12183		
					09/16/97	19:00	09/19/97	13:00	0		
					09/19/97	13:00	09/21/97	09:30	12183		
					09/21/97	09:30	10/21/97	10:52	0		
					10/21/97	10:52	10/21/97	15:15	12183		
					10/21/97	15:15	10/23/97	10:10	0		
					10/23/97	10:10	10/23/97	15:18	12183		
					10/23/97	15:18	10/24/97	14:15	0		
					10/24/97	14:15	10/24/97	15:30	12183		
					10/24/97	15:30	10/27/97	09:14	0		
					10/27/97	09:14	10/28/97	13:29	12183		
					10/28/97	13:29	11/03/97	09:00	0		
					11/03/97	09:00	11/03/97	15:25	12183		
					11/03/97	15:25	11/07/97	10:34	0		
					11/07/97	10:34	11/07/97	11:30	12183		
					11/07/97	11:30	11/20/97	05:55	0		
					11/20/97	05:55	11/20/97	10:20	12183		
					11/20/97	10:20	12/03/97	13:33	0		
					12/03/97	13:33	12/03/97	13:35	12183		
					12/03/97	13:35	12/04/97	13:12	0		
					12/04/97	13:12	12/04/97	15:06	12183		
					12/04/97	15:06	12/22/97	13:00	0		
					12/22/97	13:00	12/22/97	14:42	12183		
					12/22/97	14:42	12/30/97	10:30	0		
					12/30/97	10:30	12/31/97	23:59	12183		

6.6 Recalculation of 1996 Releases from 296-T-7

ENVIRONMENTAL RELEASE SUMMARY REPORT

05/07/98

12:51

296-T-7: 2706-T Stack (T154)

01/01/96 through 12/31/96

Total System Flow: 2.9E+10 Liters = 1.0E+09 Cubic Ft

The following factor(s) has (or have) been applied to the radionuclide concentrations used in the calculation of this release to account for sampling filter efficiency, line and bend losses, and humidity. The contribution of a radionuclide to the release varies inversely with the size of the factor. (A factor of 1.0 implies the sampling process is 100% efficient having no losses, thus no correction is applied. A factor of 0.5, 50% efficiency, causes the calculated contribution of the r/n to be doubled.)

Particulates: 0.70

Radionuclide	Release, Ci	Concentrations, $\mu\text{Ci/ml}$	
		Average	Peak
Total α	1.2E-08	3.0E-16	2.8E-15
Total β	2.8E-08	6.8E-16	5.1E-15

05/07/98 12:51									
Warning Levels:									
On/Off Dates:									
Total (M)		2.0E-14							
Total (M)		9.0E-12							
Collect Sample		Time							
Sample Flowrate		Flowrate							
Sample Volume		Volume							
Stack Flowrate		Flowrate							
CFM		CFM							

12/05/95-01/02/96		-2.4E-15	±	5604	2.1E-15	±	1204	669.0	0.2
02/23/96-03/27/96		6.7E-16	±	711	1.8E-15	±	304	792.5	0.9
01/02/96-02/23/96		6.6E-17	±	4704	4.2E-16	±	1104	1247.0	0.5
03/27/96-05/02/96		3.9E-17	±	3604	1.3E-16	±	1404	867.5	1.5
05/07/96-06/13/96		2.8E-15	±	294	5.1E-15	±	194	888.5	0.6
06/13/96-07/19/96		5.2E-17	±	4204	-1.8E-18	±	9934	859.0	1.0
08/27/96-09/10/96		2.7E-16	±	1504	5.1E-16	±	654	353.4	0.8
09/10/96-10/31/96		-3.2E-17	±	4504	1.8E-16	±	1504	1228.0	0.8
10/31/96-12/31/96								0.0	0.0

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

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01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
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01/01/96 to 12/31/96									

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1038		53548							
2005		42223							
1529		31005							
2367		56512							
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01/01/96 to 12/31/96									

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2367		56512							
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01/01/96 to 12/31/96									

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3102		44050							
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2005		42223							
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2367		56512							
99		0							

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01/01/96 to 12/31/96									

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3102		44050							
4742		79364							
2973		0							
1149		34338							
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2005		42223							
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2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
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3102		44050							
4742		79364							
2973		0							
1149		34338							
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2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		36289							
3102		44050							
4742		79364							
2973		0							
1149		34338							
1038		53548							
2005		42223							
1529		31005							
2367		56512							
99		0							

296-T-7: 2706-T Stack (T154)									
01/01/96 to 12/31/96									

1085		6079							
1084		362							

? Questionable Result - No Peak Detected.

-- Stack Flowrate of previous Sample used.

WEIGHTED STACK FLOW RATES

296-T-7 Stack (T154)

Sample Number	Sampling Periods				Stack Operating Data				Flow Rate (cfm)	Weighted Stack Flow Rate (cfm)	Sample Number
	ON Date	OFF Time	ON Date	OFF Time	ON Date	OFF Time	ON Date	OFF Time			
SXXXXX	05/02/96	13:30	05/07/96	13:30	05/02/96	13:30	05/02/96	14:55	12183	2973	SXXXXXX
					05/02/96	14:55	05/02/96	17:15	0		
					05/02/96	17:15	05/02/96	22:00	12813		
					05/02/96	22:00	05/03/96	08:20	0		
					05/03/96	08:20	05/03/96	13:45	12813		
					05/03/96	13:45	05/06/96	10:00	0		
					05/06/96	10:00	05/06/96	21:00	12813		
					05/06/96	21:00	05/07/96	08:10	0		
					05/07/96	08:10	05/07/96	13:30	12813		
SXXXXX	10/31/96	14:20	12/31/96	23:59	10/31/96	14:20	11/08/96	09:20	0	99	SXXXXXX
					11/08/96	09:20	11/08/96	10:24	12813		
					11/08/96	10:24	11/11/96	15:46	0		
					11/11/96	15:46	11/11/96	16:27	12813		
					11/11/96	16:27	11/12/96	13:05	0		
					11/12/96	13:05	11/12/96	14:34	12813		
					11/12/96	14:34	11/13/96	08:45	0		
					11/13/96	08:45	11/13/96	14:21	12813		
					11/13/96	14:21	11/15/96	10:35	0		
					11/15/96	10:35	11/15/96	14:47	12813		
					11/15/96	14:47	11/19/96	10:15	0		
					11/19/96	10:15	11/19/96	14:15	12813		
					11/19/96	14:15	11/20/96	09:00	0		
					11/20/96	09:00	11/20/96	15:25	12813		
					11/20/96	15:25	11/21/96	09:10	0		
					11/21/96	09:10	11/21/96	14:40	12813		
					11/21/96	14:40	11/25/96	09:05	0		
					11/25/96	09:05	11/25/96	14:00	12813		
					11/25/96	14:00	11/26/96	10:15	0		
					11/26/96	10:15	11/26/96	10:20	12813		
					11/26/96	10:20	11/27/96	13:50	0		
					11/27/96	13:50	11/27/96	15:10	12813		
					11/27/96	15:10	12/03/96	17:17	0		
					12/03/96	17:17	12/03/96	17:32	12813		
					12/03/96	17:32	12/04/96	08:45	0		
					12/04/96	08:45	12/04/96	15:00	12813		
					12/04/96	15:00	12/05/96	10:21	0		
					12/05/96	10:21	12/05/96	15:15	12813		
					12/05/96	15:15	12/06/96	09:15	0		
					12/06/96	09:15	12/06/96	15:01	12813		
					12/06/96	15:01	12/12/96	08:25	0		
					12/12/96	08:25	12/12/96	14:30	12813		
					12/12/96	14:30	12/18/96	09:20	0		
					12/18/96	09:20	12/18/96	11:00	12813		
					12/18/96	11:00	12/18/96	20:30	0		
					12/18/96	20:30	12/18/96	22:05	12813		
					12/18/96	22:05	12/19/96	09:08	0		
					12/19/96	09:08	12/19/96	15:11	12813		
					12/19/96	15:11	12/20/96	08:33	0		
					12/20/96	08:33	12/20/96	13:25	12813		
					12/20/96	13:25	12/26/96	10:40	0		
					12/26/96	10:40	12/26/96	11:28	12813		
					12/26/96	11:28	12/27/96	08:35	0		
					12/27/96	08:35	12/27/96	10:15	12813		
					12/27/96	10:15	12/27/96	10:20	0		
					12/27/96	10:20	12/27/96	14:02	12813		
					12/27/96	14:02	12/31/97	23:59	0		